

Beakers and Pre-existing Monuments: aspects of Ritual
in Neolithic and Bronze Age Britain.

Volume 1: Text

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Abstract

This thesis is concerned with the nature of ritual practice during the Late Neolithic - Early Bronze Age periods in Britain. It has been suggested that a change from community to individual emphasis can be detected in the archaeological record. In order to delineate this change, an analysis of the "ritual deposition" of beaker pottery on causewayed enclosure and henge monuments was undertaken, as it was considered that these deposits would potentially provide the best structured (both spatially and temporally) information.

Part 1 considers the typology, chronology, and spatial distribution of beaker pottery. It is concluded that beakers can be divided into three groups: early, middle and late. These are distinguished typologically, and have statistical significance in both relative and absolute chronology. Further, they are spatially segregated, forming bands of early and later types, with the early types having a markedly coastal distribution. Other contemporary artefact types are discussed, and broad chronological horizons are proposed.

Part 2 begins with a discussion of the nature of ditch deposits on henge monuments and causewayed enclosures, in which the possible effects of activities such as cleaning, recutting and refilling are considered. Beaker deposits and their position within the site sequences are then evaluated. It is suggested that there are two patterns of deliberate deposition common to both monument types: "scattered" (incomplete vessels, often distributed across the site), and "deliberate burial" (complete vessels, often in clusters). Both are located in the middle - upper silts, frequently associated with ditch recutting or other site modifications. Early beakers on southern sites may accompany the lithicisation of timber structures, while late beakers on northern sites are linked with the creation of a "burial" place, by the addition of cists or a cairn.

Beaker burials in the barrow cemeteries around Stonehenge are briefly considered, and in the conclusion an overall sequence is proposed. This begins with "scattered" deposits and early beakers, primarily on causewayed enclosures (in keeping with Neolithic site-use), followed by a mixture of "scattered" and "deliberate" deposits and middle beakers, on both site types, contemporary with the growth of the beaker burial, and finally "deliberate" deposits of late beakers on henges, contemporary with burials of the Wessex Culture (Bronze Age individual burial).

I hereby declare that this thesis has been composed by me and (saving where acknowledgement is made below) is based on my own work.

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"...everything you know is wrong...."

Firesign Theater, 1974

Introduction

theoretical propositions which seek to link general theory to observations about material residues have been termed Middle Range Theory... [Binford, 1983: 194]

The body of this work is an attempt to examine a thread of suppositions concerning what is known, or thought to be known, about the nature of British society and culture during the period(s) conventionally termed the Late Neolithic - Early Bronze Age (c. 2500 - 1500 b.c.). The first of these suppositions is the idea that man's emotional state (his needs, hopes, desires, fears) have altered little between that period and the present day, and can thus, by extrapolation, be gauged. Chief among these is the need to create a comprehensible order, stability, and continuity within his environment--this forms the baseline for most archaeological thinking.

Our concern then is to discover what sort of order prehistoric man created, and how his needs, and his cultures' needs, were balanced, and kept balanced. The balance between these various needs should give an indication of the priorities (and thus the structure) of society--and hopefully, insight into the mind. A view through time should outline the changes in priorities (and thus the functioning) of society, necessary to preserve a state of order.

The particular concern of this work is the changing nature of ritual practice within the Late Neolithic - Early Bronze Age, and what this may indicate about the structure and function of society during that period. "Ritual" practices, although difficult to interpret, may also be the best indicators of the "cast of mind" of prehistoric man, as they are essentially "irrational," and only obliquely

governed by outside (i.e. environmental) forces. Renfrew¹ has provided a list of archaeological correlations for ritual activity: a special building set apart for sacred functions, special facilities for the practice of ritual, human and animal sacrifice, food and drink, votive offerings, iconography, great investment of wealth and resources, reflected in the structure itself.

Of the components of "ritual" which have survived from the Late Neolithic - Early Bronze Age period, large communal monuments and individual burials are the most numerous (domestic associations are uncommon). The artefact types of the period, particularly pottery types, tend to reflect this, and it has been suggested that "...virtually all the ceramic styles of the second millennium could have played rather specialized roles..." [Bradley, 1984: 72].

Bradley, in his examination of this period [*ibid.*], concentrated on the funerary monuments, their significance, and the mechanisms by which their significance could change over time. He offers two suggestions to understanding the organisation of society during this period. First, concerning the apparent domination of ritual, and particularly funerary, monuments;

...funeral rites can be a way of focussing the attention of the living on the status of the dead...this occurs mainly in cases of competition, threat or ambiguity... [Bradley, 1984: 75].

suggesting that such emphasis may accompany social, political or economic change, or a period of drastic culture contact. Second, he notes what we perceive as the changing importance in the type of monument--from massive communal

¹Renfrew, *The Archaeology of Cult*, 1985.

edifices at the beginning of the period to individual "wealthy" burial by the end;

...the development of large ritual centres may precede the emergence of identifiable elites in the archaeological record... [op. cit., 74].

Taken together, these suggestions paint a picture of a period in which, in response to some as yet undefined stimuli, British society attempted to achieve a balance first through large ritual monuments, acting as focal points for the community. "...in Cherry's view the building of such massive structures may have political implications in justifying and displaying the role of a powerful minority..." [ibid.] These ritual centres then led to the rise in importance of certain individuals, who were eventually commemorated and probably venerated, in rich, individual burials.

At this point we can begin to formulate questions (our "Middle Range Theory"), and select criteria in order to evaluate our suppositions. We need to ask the basic questions of What, When and How? What are the features of ritual practice in the "monumental" and "individual" phases--what monuments and artefacts are they associated with, and how are these distributed? Is the shift sudden and distinct, or gradual, and when does it occur? What, if any, stimuli can be identified, and how do they act upon society?

To answer these questions, it is necessary to select from the *plethora* of ritual sites and artefact types of Late Neolithic - Early Bronze Age period those which will provide the best **structured** information. This information should be structured in two ways; spatially, so that relationships can be examined at one point in time, and temporally, so that changes in balance over time can be seen. Both the

monuments and artefacts selected should be well-defined and securely sequenced types--a difficulty, considering the vagaries of excavation practices over the last century. It is suggested that the following types be especially considered: causewayed enclosures, henge monuments, and beaker pottery. These two monuments have the advantage (generally) of stratified ditch deposits, frequently radiocarbon dated, while beakers are an easily recognizable pottery type, with an intensively examined and effectively datable internal sequence.

The initial part of this thesis will concern itself with the pottery types of the Late Neolithic - Early Bronze Age period, with special emphasis given to beaker wares, in the hope that they may prove a key element in charting changes in ritual practices. Some consideration will also be given to metal typology. Chronology is a major factor, and sections will be devoted to relative and absolute chronology, the latter based on radiocarbon dates.

The second part of the work will consider in depth the henge monuments and causewayed enclosures which include sizeable or important deposits of beaker material. There are several reasons for considering these two types, among them the presence of large quantities of stratified material, and the fact that major structural modifications (and construction, in the case of several henges) were taking place during this period. Long Barrows, it was felt, could not provide the same volume of stratified remains, although they are considered briefly [ch. 8]. The "Wessex Culture" barrow cemeteries surrounding Stonehenge, the apogee of the individual accompanied burial, will also be discussed.

Bradley, in examining the relationship between beakers and monuments in the Wessex area, proposed the following sequence of events [op. cit., pp. 79];

1. The first beakers are found in the later levels of causewayed enclosures and long barrows, and also as occasional finds in henges. In Wessex they do not appear in rich graves.

In the initial stages it seems as if beaker material was playing a rather similar role to other finds from earlier monuments.

2. In the middle phase beakers played a far more prominent role in henges and became important finds in burials.
3. Whilst late beakers remained quite important as grave goods, they played a smaller role on the henges.

He suggested that this sequence could be extended to cover the rest of the country [op. cit., pp. 80, table 4.3];

Table 1: The Changing Associations of Beaker Pottery Nationally

	Early Phase	Middle Phase	Late Phase
	%	%	%
Long barrows	40	30	30
Causewayed Enclosures	60	10	30
Henge Monuments	29	50	21
Complex Burials	2	49	49

The concluding sections will consider whether these hypotheses can be supported, and whether they provide a useful summary of events.

Concerning Terminology and Abbreviations:

Within this work, certain conventions have been adopted, in an attempt (hopefully) to alleviate confusion.

Radiocarbon Dates:

Radiocarbon dates, unless specifically stated, are always quoted in uncalibrated radiocarbon years (b.c.), \pm one standard deviation (σ). The old convention of b.c. (uncalibrated radiocarbon years) and B.C. (calibrated radiocarbon years) is used throughout.

In the sections concerning analysis of radiocarbon dates, two types of test are frequently referred to: Boxplots, and the Kruskal-Wallis test. These are defined below [see also ch. 1, section 1.4].

Boxplots display the main features of a data batch and permit simple comparisons of several batches. The middle half of each batch is represented by a box and the median is marked with a "+". The extent of the data and the location of possible extraordinary values are indicated on either side of the box with special symbols.

Hinges are essentially quartiles². In a boxplot, dashed "whiskers" run from the hinges to the adjacent values on each side. Values between these inner and outer "fences" are possible outliers, and are plotted with a "*". Values

²or quarters; i.e. the data are divided into four parts, each consisting of 25% of the total data for that group. The middle two quartiles (the inner quartiles) comprise the middle 50% of the data. In the case of radiocarbon dates, 50% of the dates from the group should fall within the period defined by the inner quartiles for that group. See Ottoway, 1973, for further discussion.

beyond the outer fences are probable outliers, and are plotted with an "O" [Minitab, 1988: 234].

A Kruskal-Wallis test is a k-sample generation of the Mann-Whitney-Wilcoxon test and thus offers a nonparametric alternative to the usual one-way analysis of variance³. The test assumes that the data arise as k independent random samples for continuous distributions all having the same shape. The null hypothesis of no differences among the k population locations is tested against the alternative of at least one difference. The test statistic is defined by first ranking the combined sample. Under the null hypothesis, the distribution of H can be approximated by a chi-square distribution with k-1 degrees of freedom. The approximation is reasonably accurate if no group has fewer than five observations. Large values of H suggest that there are some differences in location among the k populations [Minitab, 1988: 196].

County Names:

With the exception of Longworth's analysis of Collared Urns, all locations refer to the old (pre-1975) counties. This is done for the convenience of the author and readers, as the majority of material referenced refers to the old county names and boundaries.

³"...many statistical procedures...require limited distributional assumptions about the data. Collectively these procedures are termed distribution-free or nonparametric tests...they are most useful in situations where parametric procedures are not appropriate: when the data are nominal or ordinal, or when the interval data are from markedly nonnormal distributions. Significance levels for certain nonparametric tests can be determined regardless of the shape of the population distribution since they are based on ranks..." [SPSS, 1988: B179-80].

Measurements:

Excavator's original measurements have been retained (i.e. feet and inches) as it was felt that no significant advantage could be gained by converting all measurements to metric.

Appendices, Figures and Tables:

All appendices, figures and tables marked with an § are included in this thesis, primarily in volume 2. See table of contents, volume 2, for a complete listing.

Ceramic Typologies: People vs. Pots

All names of ceramic types (e.g. Peterborough Ware, Grooved Ware) have been capitalized, with the exception of beakers. This has been done to draw a distinction between discussions of beaker ceramics, and "Beaker People" or "Beaker Culture" (always capitalized). Thus "beakers" (small "b") refers to the pots.

This does not imply, however, that the author wishes Peterborough Ware, Grooved Ware, or other ceramic types to be viewed as cultural entities. There would seem to be general agreement now that these groups should be viewed as fulfilling specific roles within the British cultural framework, rather than as markers of different cultures. The arguments for pots vs. people will not be discussed at length here [for a fuller discussion of the beaker-related arguments see ch. 1, particularly Simpson, 1971, Brothwell, 1972 & 1974, Dennell, 1976, Burgess & Shennan, 1977 and Whittle, 1981]. In the view of this author, the evidence

presented in favour of "people" is not sufficient to award beakers a "Culture" status. In particular there is the lack of any distinct Beaker settlement type, and the terms "beaker coarse ware" and "beaker domestic ware" seem to be applied fairly indiscriminately to any undecorated or coarsely decorated pottery found in association with beaker ware. Kinnes' work on round barrows and single inhumations [Kinnes, 1979], together with more recent radiocarbon evidence has effectively served to separate these practices from the Beaker Culture [burial practice, together with links to metal will be discussed more fully in ch. 9], and the remaining arguments, for the shift to barley cultivation and the introduction of a new skull type, have never been very convincing. With the exception of the Orkney culture, associated with the Rinyo variant of Grooved Ware, the situation is the same for the other ceramic types.

Natives vs. Invaders

Finally, although there has been much discussion of "Beaker invaders" and "Beaker traders" there has not, as far as the author is aware, been a single piece of clearly "foreign" beaker found in the British Isles, nor have any of the many analyses suggested that the fabric was anything other than "of local manufacture." In addition, British beakers, with perhaps one or two exceptions are markedly different in both form and organisation of decoration from those of the rest of Europe. Whatever the origin of the idea, the pots at least would seem to be a "native British" product.

**Part 1. Aspects of Ceramic Study and Associations
in Late Neolithic and Early Bronze Age Britain**

Chapter 1: Beakers

1.1. The History of Beaker Studies in Great Britain

The intention of this chapter is to set forth, in as orderly a way as possible, the chronological development of Beaker studies in the British Isles over the roughly 100 years of research since Beakers were first classified in 1871. Emphasis will be laid both on the actual content of studies, and on the context in which those studies took place, hopefully providing insight into the "why" as well as the "what" of particular views. As a rough guide, Renfrew's three phases, outlined in chapter one of "British Prehistory: changing configurations," [Renfrew, 1974] are adopted, being useful for understanding the backdrop against which Beaker Culture developments are set.

1.11. "The Old Age of the Three Age System: 1860-1920"

The first of Renfrew's three phases, "The Old Age of the Three Age System: 1860-1920," coincides with the beginnings of beaker studies in Britain. This was the period of classification, often following biological lines, into a series of fixed modes, under broad headings such as "Neolithic Man, " or "Bronze Age Man." It was a period of intense anthropological fieldwork, whose monographs provided a rich source for parallels between modern groups and ancient man.

...what they lacked, however, was any clear understanding as to how these three or four modes of life came about, or why they should change...this was a static picture of the past....
[Renfrew, 1974: 5-6]

Early Beaker studies concentrated on cataloguing and describing this distinctive pottery form, which seemed an

integral element in ancient British burial customs, and turned up with great regularity in the sepulchral mounds, which were being opened around the turn of the century (the majority by Greenwell or Mortimer in the 1860's and 1870's).

In 1871, in a paper delivered to the Society of Antiquaries, John Thurnam set forth the first beaker typology [§see fig. 1, pp. 518]. After reviewing the corpus then available primarily from the excavations of Hoare [1810, 1812] and Bateman [1848, 1861], he divided these "drinking cups" into three groupings based on shape: α "high-brimmed globose cup"; β "ovoid cup with recurved rim"; and Γ "low-brimmed cup". These basic typological distinctions, with modifications, remained the standard for beaker classification until David Clarke's revolutionary work, published in 1970. Thurnam saw beakers as a rather late development in his scheme of ancient cultural traits.

...it may rather be supposed that they belong to a late period, when, from different causes, as the influence, perhaps indirect, of Roman culture, the burial of weapons had become rare, whilst that of vessels for food and drink had received no discouragement...[Thurnam, 1871: 380].

Thurnam believed his type α , the prevailing type in South Britain, to be the earliest in his series, with type β as a later but independent introduction, and type Γ , most common in Northumbria and Scotland, as a late and debased version of type α . He also noted the occurrence of handled beakers as belonging within his "drinking cup" classification.

Abercromby produced the first corpus of beaker pottery in 1912. Building on Thurnam's work, he added the classifications B2 AC, AB, and BC, to deal with the variations of shape. He retained the basic chronological order--A, B, C,--and chronological sequence, from south, his

"province 1": the area south of the Thames" to north
 "province 7": counties north and west of Aberdeenshire."
 As had Thurnam, Abercromby noticed the shift in the ratios of his types , with A and B becoming less common, and C more common as one moved northward. By the time he reached "province 6"(Forfar, Kincardine, and Aberdeen) "...type A has now disappeared entirely....there are two examples of type B1; all the rest belong to type C or its variant BC...."[Abercromby, 1912: 39].

Within type A he recognized three phases of devolution (AI-AIII respectively), which he later used as a basis for dating the expansion of Beaker Culture "...after the landing of the invaders, probably somewhere on the coast of Kent...." [Abercromby, 1912: 111]. Allowing five generations each for Phase I and II of type A, he calculated that the Beaker-users

...moved at a rate of about 50 miles in each generation, or about 5 miles every three years...as beakers appeared first in Province IV about ten generations later than in the south, the probably did not last longer than five or six generations in the northern provinces. Such an estimate assigns to the beaker period in Great Britain a duration of fifteen or sixteen generations, or about 450 years....[Abercromby, 1912: 86).

Abercromby was not content with merely dividing and cataloguing beakers, he also undertook an extensive analysis of the related grave goods, and the ethnographic and historical parallels. He concluded that

...about 2000 B.C. Britain was invaded by a rugged but enterprising people mainly of Alpine stock...their ancestors at a period still more remote...had lived beyond the Rhine.... [Abercromby, 1912: 110].

Stuart Piggott, in his analysis of Beaker Culture for the Festschrift for Sir Cyril Fox, "Culture and Environment", said that Abercromby had made three important contributions to the understanding of Beaker typology and of typology as a whole,

...Abercromby demonstrated for the first time that changes in the material cultures of prehistoric Britain could result from immigration and trade from the European continent...that variant styles of ornament and shape in pottery could be so classified and interpreted as to yield a ceramic sequence which could be used by itself to produce not only a relative, but an absolute chronology...that accepting the validity of the typological sequence which he had constructed for the pottery, other elements of the material culture, whether in the form of grave-goods or in that of variant types of tomb, had necessarily to be set into their chronological position entirely in terms of the pottery type with which they might on occasion be associated.... [Piggott, 1963: 54]

1.12. "Cultures and Invasions: 1920-1960"

The next sixty years (Renfrew phase II) were marked by a series of alterations in and elaborations on the basic Abercromby scheme, an increasing concern for the location of Beaker origins, and the development, primarily out of continental studies, of the elements of what was later to be known as the "Beaker Cultural Complex." They saw the increasing demarcation between types B and A/C, which came to be viewed as distinct cultural sub-groups rather than merely pottery styles [fig. 2, pp. 519]. The works of Fox and Childe in the 1920's set out these distinctions, with the type B complex associated with tanged copper daggers, archer's bracers, and small barbed and tanged arrowheads. The type A/C complex also contained barbed and tanged arrowheads, but was set apart by its stone battle axes,

riveted metal daggers, flint daggers, V-bored jet buttons and bone and jet pulley-rings.

Childe, in his chapter on the Bell Beakers for The Danube in Prehistory saw Beakers as roving tradesmen.

...the diffusion of bell beakers is due neither to a mass migration nor to mere cultural borrowing...it results from the movement of small groups of people quite evidently guided by a taste for gold, amber, and kindred substances...[Childe, 1929: 196]

Clark made use of the B-A/C distinction. He noted that Abercromby, by labelling his beakers A, B and C had given the impression of three groups, when in fact C was merely a debasement of A, and there were therefore really two types. In setting forth his typological scheme, however, he retained the C classification (although now as a variety of A) and included Abercromby's AC classification, for beakers standing between A and C in shape and decoration. Incorporating Fox's suggestion [Fox, 1923] of a Beaker invasion from the Wash, Clark stated

...the beaker culture of this country is made up of two distinct complexes...the B beakers appear to have reached us from the southeast...the A+C group appears to have entered in very large numbers by way of the Wash....[Clark, 1931: 424]

The Thurnam/Abercromby chronological sequence of A-B-C ran into disagreement early on. Cunington, in 1926, examined the then existing stratigraphic evidence for the A-B-C arrangement and found

....in the only case where the forms of the two vessels found in the same barrow is known, that with the primary burial was of type B, and that with the secondary of type A...in this case therefore, type B was, if anything older than type

A. Looking at the evidence as a whole, as far as it is known for Wiltshire, it cannot be said that the one type is older than the other; they appear, indeed, to have been contemporary....[Cunnington, 1926: 269]

With further work in the 1930's on the continental material, it began to occur to several researchers, particularly Childe and Mitchell, that some of the C beakers stood closer to the continental types. Mitchell, in 1934, further revised Abercromby's typological scheme. Influenced seemingly by the infant science of genetics, she proposed that type C be divided into Ca and Cb, with the suffix indicating the original source, as "...the degeneration processes of both A and B tend to produce similar results. Thus, Abercromby's type C beaker could "...be derived from either A or B...."[Mitchell, 1934: 133]. She happily traced the origin of most Scottish beakers to English or Welsh parallels, but could find no suitable British origin for the groups of the northeast, and was forced to conclude that

...the Ca beakers... have continental affinities which, allied to the character of the distribution in this area, make direct contact with the continent more than a possibility.... [Mitchell, 1934: 140]

She chose Aberdeen as the focal point of a beaker invasion on the basis of distribution numbers and a "common artistic sense" underlying the decorative styles between Aberdeen, Holland, and the Rhine, and concluded by saying "...on the east coast there is no evidence of contact with a pre-existing Neolithic population, and Beaker cultural supremacy is firmly established...."[Mitchell, 1934: 161]

E.T. Leeds, in his work on the beakers of the Upper Thames district, also remarked on the paradoxes apparent in the A-B-C chronological scheme.

...the B beakers show no sign of having adopted the A decorative schemes, it seems certain that the zonal decoration of the three A beakers mentioned above must be attributed to the influence of the B group.... [Leeds, 1938: 14].

Leeds viewed type C as a hybrid of A and B, adding four variations (d-g), "d" between A and B, the others between B and C, all of A ancestry. On the basis of style, decoration, and fineness of manufacture he felt that the B group must precede the A in the Thames area, although he noted that

"...the decoration of the B beakers is no reliable criterion of date; the combination of lines with herring-bone was evidently a favourite and long-lived ornamental system...."[Leeds, 1938: 17].

While Clark, Mitchell and Leeds concerned themselves with restructuring the A-C relationships, Piggott, Fox and Childe redefined the B groups. In "The Early Bronze Age in Wessex" [1938], Piggott examined the distribution of Abercromby's classes B1 and B2, finding that the former was a Wessex type while the latter came primarily from Sussex and Kent. He explained this spatial distinction in terms of two separate movements from the continent, and on the basis of parallels from Brittany assigned the B1 beakers an Armorican origin, (as he did later with the Wessex culture). Piggott also remarked on the occurrence of beakers in association with henges and stone circles, adding these monuments to the growing list of Beaker cultural associations. Following Clark⁴, he grouped henges with "the makers of Late Neolithic Grooved Ware, and with the A beaker culture," while he placed stone circles and avenues with B1, again derived from

⁴see Clark, J.D.G., Proc. Pre. Soc. 2: 1-51.

Armorica. He assigned the arrival of the A Beaker Culture in Wessex to a date not before 1800 B.C.

Fox further sub-divided the B1 group, based on his excavation of Sutton 268' in Glamorganshire. He recognized an α sub-type with a rounded body, and a β sub-type with an angular body to which he assigned the Sutton 268' beaker. He went on to elaborate the "degradation" of the beta sub-type in five phases, based on the

...reduction of the flare of the rim, the emphasis on this part of the beaker being retained by means of a cordon; weakening and raising of the body angle; and coarsening of paste and decoration....
[Fox, 1943: 102]

On the basis of parallels with a beaker from Cassington, Oxford⁵, he dated the Sutton 268' beaker, which he ascribed to B1b phase 5, to c.1500 BC.

Childe's seminal work, Prehistoric Communities of the British Isles, published in 1940, summarized nicely these various studies, "fleshing-out" the typological outlines with insights into the nature of the "Beaker Folk".

...the self-sufficiency of the neolithic economy was broken down by the advent of war-like invaders imbued with domineering habits and an appreciation of metal weapons and ornaments which inspired them to impose sufficient political unity on their new domain for some economic unity to follow....[Childe, 1940: 91]

The B and A/C pottery groups became two distinct groups of invaders (one can hear echoes of the current political situation throughout the chapter), the B-beakers arriving first. Childe recognized the B1 group as the classic

⁵Leeds, E.T. 1934 *Antiquaries Journal*, pp. 269.

"European Bell-beaker," deriving from either the Rhineland or Brittany, and settling in the south-west of England. The B2 group, cruder than B1 and distinguished by burial in flat graves, came from the Rhine, (following Piggott), and exerted their influence in Essex, Suffolk, and Oxfordshire. He further distinguished a B3, divided into b, with cord impressions in zones, and a, with cord impressions in a continuous spiral (later re-named all-over-cord by Clarke) settling in northern England and Scotland. Parallels for this group could be found in northern Holland, the Rhine, Brittany, and southern France, and B3 beakers were often associated with gold earrings and jet disc beads.

The B beaker groups were followed by the A/C groups, which Childe felt were a mixture of pure Bell-Beakers and Battle-Axe culture.

...the AC Beaker Folk seem to have arrived in larger numbers and to have colonized Britain more intensively and more extensively than their precursors... there are indications that they may have deliberately hastened to seize strategically and economically important areas....[Childe, 1940: 97]

Childe reiterated the earlier ornament and weapons groupings associated with each type, the occurrence of single crouched inhumations and brachycephalic skull, considered the hallmark of Beaker populations in north-west Europe, and the association of Beakers with henges, stone- and timber-circles. Commenting on the settlement evidence, he noted the virtual lack of any settlement sites which "...enhances the impression of pastoral nomadism...."[Childe, 1940: 98]. He concluded that "...the Beaker Folk must have formed a relatively thin governing class, dominating and organizing older alien societies...."[Childe, 1940: 119] and being eventually

absorbed into those societies, during the Wessex Culture period.

Childe's analysis set forth a picture of Beaker Culture which remained virtually unchanged until the work of Burgess, Shennan, and others in the 1970's. In this it was no different from other cultural analyses of its time. Renfrew comments that

...by 1940 the shape and nature of British prehistory had been re-defined, with a wealth of detailed analysis, so that for the next twenty years the bulk of further work refined this structure, modifying it, elaborating it, and adding detail, but did not challenge it....[Renfrew, 1974: 11]

Three studies in the 1950's by Case, Savory, and Griffiths, were further elaborations of the burgeoning beaker typological scheme. Case and Savory concentrated on applying descriptive labels, after the manner of Piggott's 1955 paper. It is interesting that both Savory and Case, whose papers appeared in 1956, retain the older B-A-C chronology, while Griffiths, published one year later, firmly adopts the revised B-C-A version demonstrated by Piggott in 1955⁶ and 1963, and van der Waals and Glasbergen in 1955.

Savory begins his study of Welsh Beaker material by reiterating previous theories on the continental origins of the different Beaker groups. He discusses the recently published theories of Piggott, and van der Waals and Glasbergen, but feels that "...on the whole it is preferable to assume that the 'A' beaker has had an independent continental inspiration...." [Savory, 1956: 223], citing the

⁶Piggott, S. 1955 *Archaeology News Letter* 6(1): 15.

lack of exact parallels for the C type on the continent as negative evidence. He then concentrates on the Welsh corpus, dividing it into "west" and "east" groups, the west with "primary" A and B1 beakers, the east with C and "debased" A groups. He considers the west groups to pre-date the east, and the whole complex to fall between 1800-1400 B.C., citing Milojcic's date for the Bell-Beaker complexes of central Europe, c. 1850-1700 B.C. as terminus post quem, and Piggott's Wessex culture as terminus ante quem. Savory also places the origins of metallurgy in the British Isles with the Beaker invaders, a point which Childe had rejected, preferring to see his Beaker overlords as purchasers of Irish products, providing the capital and influence to stimulate the trade of luxury goods. Savory counters the distributional evidence, which separates Beakers and metalwork both spatially and temporally, by suggesting that

...the late association of metalwork in the British Beaker culture may well merely reflect a trend in burial custom which culminated in the rich burials of the Wessex culture.... [Savory, 1956: 227].

The idea of Beakers as bringers of metalwork is a relatively late development in the Beaker package; although earlier authors occasionally toy with the idea it is not until the work of the 1950's and 1960's that this concept becomes fully established⁷.

⁷For examples of the relationship between Beakers and metal-working see articles by Case, H. 1965 "A Tin-Bronze in Bell-Beaker Association," *Antiquity* 39: 219-22; 1976 "Were Beaker-people the First Metallurgists in Ireland?," pp. 141-77, in: Lanting and van der Waals, *Glockenbecher Symposium*, Oberried, 1974; and Butler, J. and van der Waals, J. 1967, "Bell-Beakers and Early Metalworking," *Palaeohistoria* 12: 41-141.

Griffiths, reviewing the Welsh corpus in 1957, completely revised Savory's scheme. Reverting to much of Abercromby's classification, he developed the most lengthy typology to date. In addition to recognizing Abercromby's three phases for the degeneration of type A, he differentiated between AC beakers, which are a fusion of the A and C styles, and A/C beakers, which retain the A form but with C-style decoration. His work is important both for its recognition of the B-C-A chronological order and for its examination, with numbers published, of burial types. Griffiths noted that the grave furniture of the Welsh burials was normally that associated with the A and C groups (confirming his impression that the Welsh beakers were as a whole later in the British Beaker sequence). He also recorded the types and situations of the burials, finding that

...of the 44 vessels from burials, seven were found in megalithic chambered tombs (16%), the remainder were with single burials (84%)...the prevailing rite was inhumation. Of thirty-three single burials with human remains preserved, twenty-seven (82%) were by inhumation and only six (18%) by cremation.... [Griffiths, 1957: 74, 76]

Studies of Beaker typology from the mid 1950's onwards relied heavily on a crucial paper by J.D. van der Waals and W. Glasbergen, published in 1955. Entitled "Beaker Types and their Distribution in the Netherlands," it provided the first corpus of Dutch material, and the first radiocarbon dates, for British prehistorians seeking close continental parallels. The relatively simple groupings, based on profile and placement of ornament, are, with one alteration⁸, still in use. They divided the Dutch corpus

⁸The Bell-Beakers with PFB characteristics, group 2^{2a-c}, later the All-Over-Cord beaker group, van der Waals and Glasbergen placed as a later development within the Bell-Beaker sequence on the basis of style and one radiocarbon date, from Noord-Brabant (GrN 381, 3965 ±

into two families, on the basis of base profile: the protruding-foot beakers (PFB), and the bell-beakers (klokbekers). Each group was subsequently sub-divided on the basis of "zonal" development of decoration (ie. from an all-over style to one in which the decoration was severely restricted into bands around the neck and body), which they felt could be used as a relative dating mechanism. The earliest group, 1a, of the PFB family, was dated to c. 2200 b.c. by finds from the sites of Ede (GrN 330, 2145 \pm 120 bc) and Schaarsbergen (GrN 318, 2486 \pm 320 bc). The latest group, the developed "Veluwe beakers" of the bell-beaker family, 2^{1d-1f}, they placed between 1700-1500 b.c., and these dates were the "brackets" for British beakers for the next twenty years. On the basis of associations they established a chronological sequence:

2200 b.c.	1 ^a
2000-1800 b.c.	1 ^a , 2 ^{1a-b} , 2 ^{2a-b}
1800-1700 b.c.	1 ^{b-d} , 2 ^{1b-c} , 2 ^{2a-c}
1700-1500 b.c.	1 ^{b-d} , 2 ^{1d-f} , 2 ^{2c}

Cross-channel comparisons with British beakers gave them the confidence to state that

...the crossing of the north sea by Beaker elements from the central Netherlands took place in stages 2^{1b-c}, 2^{2b} of the Dutch beaker evolution. The invaders from overseas first looked for thinly populated, remote parts of the British Isles...there a local evolution started and later the culture spread over large areas.

150 bp). They later revised this, placing the AOO/AOC group between PFB and Bell-Beakers. see J.N. Lanting and J.D. van der Waals, 1976, "Beaker Culture Relations in the Lower Rhine Basin," *Glockenbecher Symposium*, Oberried, 1974, pp. 2-80; Lanting, J.N., Mook, W.G., and van der Waals, J.D. 1973, "C14 Chronology and the Beaker Problem," *Helinium* 13: 38-58.

Abercromby's A-beakers and the Dutch Bell-Beakers of Veluwe type phases 2^{1d-f} of the true Bell Beaker series constitute local evolutions.... [van der Waals and Glasbergen, 1955: 37]

Piggott, writing in 1963, began with a concise summation of the development of Beaker studies from its inception with Thurnam in 1871 to the present, ending with a redefinition of terms for Beaker pottery styles, following his 1955 paper. Searching for labels with a more "material/cultural context" slant, he proposed one of the three schemes still in current use⁹.

Abercromby et. al.	Piggott (1963)
B1	Bell Beaker
B3	Cord Zoned Beaker
B2	Barrel Beaker
C	Short Neck Beaker
A	Long Neck Beaker

Of these groups, The Bell, Cord Zoned, and Short Necked were continental developments, while the Barrel and Long Necked were insular; the Barrel Beakers derived from the Bell type, the Long Neck from the Short Neck.

Heavily influenced by Sangmeister's *Rückstrom* theory¹⁰, Piggott proposed an origin for the Beaker cultures in the

⁹The other two being Clarke, 1970, and Lanting and van der Waals, 1972.

¹⁰see Sangmeister, G. 1966 "The Dating of the Reflux of the Bell-shaped Beakers and their Influence on the Chronology of the Copper Age in Portugal," from *Paleohistoria* 12: 344-401, translated by R. Simek.

Iberian peninsula with a reflux movement via the Rhineland and the Netherlands which "...brought with it certain well-defined elements such as cord-zoned beakers...archer's bracers...and other traits...." [Piggott, 1963: 60]. He felt the uniformity of the Bell-Beaker group argued for a rapid dissemination, and saw the movement from Spain as taking place sometime before c. 2000 B.C. Of the ultimate origins for Beakers he suggested that

...ceramic style itself may derive its ornament from certain types of cardial and impressed wares, and the characteristic form may be related to pottery types current in the period of ...such sites as Los Millares and Vila Nova de San Pedro....[Piggott, 1963: 58]

Ashbee [1960] added two more names to Piggott's list, Fox's Blb group becoming Rim-Cordoned Beakers, and Childe's B3a, Cord-Spiraled.

The state of knowledge of the Beaker Culture as it had developed over the twenty-five years since Childe's work was neatly set forth by Tait in his introduction to Beakers from Northumbria [1965]. The "Beaker Folk" were associated with:

1. a distinctive pottery type
2. the introduction of copper metallurgy
3. single grave inhumation under round barrows
4. a brachycephalic skull type
5. henge monuments and stone circles
6. a shift from wheat to barley agriculture
7. pastoral/nomadic lifestyle

The grave goods could further be divided into three distinct "packages," each of a different origin.

Renfrew's phase II archaeologists had taken the early classification schemes and filled them out with a complex series of movements of discrete cultures, each seemingly

arriving on cue, then disappearing back into the murky depths.

...the prehistorians of the 1920's created a new archaeology...the idea of continental invaders thus became the storyline and the two basic and unifying ideas in prehistory, the migration of peoples and the diffusion of culture became the central theme....[Renfrew, 1974: 11, 14]

Change was recognized, and associated with the movement of people. What was lacking was an understanding of how those changes were occurring, and why. From the late 1950's on, science and technology were becoming increasingly important in archaeology. New techniques meant more and more information was being recovered, particularly in the areas of environment and economy, notable gaps in beaker studies up to that time. Radiocarbon dates were challenging long established chronologies.

...in the decade prior to 1960 several things went wrong with British prehistoric studies...doubts were gathering about the foreign nature of several elements in British Neolithic culture...the fundamental link forged by Montelius and strengthened by Childe...was snapped....[Renfrew, 1974: 32]

In its place came the study of "cultural process", of change within cultural systems, and the attempts to quantify the nature and direction of that change. Prehistorians of the third phase would

...explain cultural change...in local terms, by discussing the social and economic processes which led to innovation and to the acceptance of innovation in various communities ...analyse different fields of activity, different sub-systems of the cultural system...it is in the interactions between these different fields or sub-systems that culture change is produced....[Renfrew, 1974: 35-6]

Rumbles were heard below the smooth waters of the Beaker Culture picture prior to the onset of phase III, but these were largely ignored. Leeds, in his 1938 paper, pointed to the disparity between the neolithic/dolicocephalic--beaker/brachycephalic division and the actual evidence.

...the skeletal material from the Cassington cemetery revealed a remarkable range of skull types, extending almost to the limits of brachycephaly and dolicocephaly....[Leeds, 1938: 17]

Tait, in the Northumbrian Beaker volume, mentioned in passing that round barrows of neolithic date were known in eastern England prior to the arrival of Beakers. He also pointed out, rather unhappily, the extreme rarity with which metal occurs in Beaker contexts, no more than 1% of the total number of Beakers for northern England and Scotland by his estimate [Tait, 1965: 26]. But it is not until the publication of a remarkable work by D.L. Clarke, in 1970, that the floodgates for questioning are opened, and in the aftermath, there is a total restructuring of the nature of Beaker culture, and of the emphasis of Beaker studies.

1.13. Towards the Study of Cultural Process.

D.L. Clarke's two volume study, The Beaker Pottery of Great Britain and Ireland is astonishing both in the scope it attempts to cover, and in the corpus of material gathered within it. It is important because it represents not only the largest collection of beaker material within the British Isles, but also the first "scientific" attempt to classify and understand that material. In this it belongs within the frame of the "new" processual archaeology. Yet in terms of the actual content of the analysis there is much which

clings to the older notions (particularly the multiple invasion theories), so that the work lies between old and new, embracing parts of both (and being satisfactory to neither). In many ways, the amount of material is too large, and much of the analysis suffers by being too general or abstract. There are technical faults with the presentation of the material as well¹¹, which make the volumes difficult to follow. Despite these faults, it remains the standard reference work on beakers, until another updated corpus is published.

Clarke's unique approach was the use of matrix analysis to define his typological groups. Matrix analysis sorts certain items into discrete groups, on the basis of certain defined traits. Clarke identified four basic traits by which pottery could be sorted: shape, decorative motifs, position of the decoration, and paste and firing. Of these,

...the paste and firing of the beakers can be shown...to be largely a common beaker group tradition, varying in the subgroups largely within geological constraints...the shape of a beaker is at least partly functional whereas the decorative motifs and styles are largely non-functional traits, designed to satisfy the aesthetic tastes and traditions of the potter...they provide an indicator of common cultural tradition....[Clarke, 1970: 5-6]

Taking decorative motifs as his primary criterion, he established sixteen groups, each further defined by quasi-geographical distribution and different possible centres of origin. Of these groups, seven represent invasions from the continent, the remaining nine are indigenous developments. In summary they are:

¹¹see reviews by Piggott, S. *Antiquity* 45: 148-50, 1971, and Savory, H.N. *Archaeologia Cambrensis* 120: 112-16, 1971.

1. the first wave: All-Over-Cord Beakers (AOC), from the Rhine/Drenthe area, arriving c. 2000 B.C., and settling in the areas of the Thames, Wash, and Scottish east coast. They bring with them AOC beakers, crouched inhumations under round barrows, metal, barbed and tanged arrowheads, and are possibly associated with the building of timber circles.
2. the second wave: European Bell Beakers (E), from the Middle Rhine, arriving c. 1900-1800 B.C., and settling in East Anglia and Wessex, also from the Frisian coast and Elbe valley, settling on the north British coast.
3. the third wave: five groups; the Wessex/Middle Rhine Beakers (W/MR), from the Mainz/Coblenz area, arriving c. 1750-1600 B.C., associated with a series of rich burials (Dorchester, Winterslow, Mere, Roundway), trade with Ireland and Germany in gold and copper, possible association with Lunulae, eventually evolving into the Southern Beaker series.

Northern/Middle Rhine (N/MR) Beakers from the Rhine area, related to the West Deutsche Single Grave element, also arriving c. 1750-1600 B.C.

Northern/Northern Rhine Beakers (N/NR) from the north German plain, related to the Single Grave/Late Corded Ware groups, arriving c. 1750-1600 B.C., and settling the Wolds, the Borders and the Moray Firth. Associated with an east-west burial orientation, they eventually become incorporated into the Northern series. Some elements of this group may join with local Neolithic cultures to produce Food Vessels found in eastern Scotland and Northumbria.

Barbed Wire Beakers (BW), from the north European plain, especially Lower Saxony, north Rhine, and Westphalia, they represent a fusion of Late TRB, Single Grave and Corded Ware cultures, with influences from the Vucedol group (c. 1800 B.C.). They arrive in Britain c. 1700-1500 B.C., settling primarily in East Anglia, and influence the development of the East Anglian Beakers and Fengate ware.

North British/Dutch Beakers (N₁/D) from the Veluwe area and the Rhine delta, arriving c. 1700-1600 B.C., they lead directly to the development of the Northern series.

Indigenous developments: these are represented by three series,

4. East Anglian Beakers (E. Ang.), developed from the European Bell Beakers and the Barbed Wire Beakers, with influence from Wessex/Middle Rhine and Mildenhall Neolithic wares, they appear c. 1700-1500 B.C. and are associated with two centres of axe production--Sussex and Grimes Graves.

5. the Northern series:

- a. Developed Northern Beakers (N₂), from the North British/Dutch series, appearing c. 1650-1550 B.C., centering on the Scottish east coast, the Border counties, the Yorkshire Wolds, and the Fen/Wash areas. The Yorkshire group was held to rival the Wessex group, with trade routes to the Netherlands, associated with the exchange of amber, single riveted daggers, C1 type bracers, jet, gold, and bronze.
- b. Late Northern Beakers (N₃), c. 1600-1500 B.C., who expand their area to include western Scotland and northern Ireland. By the end of their period they lose the three southern areas to the Developed Southern and Late Southern groups, and pressure from the Food Vessel groups in the Moray Firth causes the N3 to split into an "Irish Vase" Food Vase group, with a Hiberno-Scottish province,
- c. Final Northern Beakers (N₄), centred in north-eastern Aberdeenshire, appearing c. 1550-1450 B.C. They are eventually absorbed into the local Food Vessel groups.

6. the Southern series:

- a. Primary Southern Beaker (S₁), from the Wessex/Middle Rhine, Northern/Middle Rhine, and a southern branch of N2, appearing c. 1650-1575 B.C. they emphasize the trend towards a longer neck.
- b. Developed Southern Beaker (S₂), appearing c. 1600-1500 B.C., they are composed of two major groupings, one in Wessex/south Wales, the other spread over Yorkshire, the Borders and lowland Scotland, the Peak District/north-west Wales, and the Fen margin. The Wessex/south Wales group is distinguished by "funnel necks" as opposed to "cylindrical necks." Both groups display an interest in henges and stone circles.
- c. Late Southern (S₃), appearing c. 1525-1475 B.C., centred in the eastern and northern counties, due to the expansion of the Wessex I culture, established during late S2. Also incorporating a north-west group, in northern Wales and northern Ireland.

- d. Final Southern (S₄), appearing c.1400 B.C., centred in East Anglia and the Fen margin, eventually diffused into Biconical Urns and "Sub-Beaker" Food Vessels.
7. and finally, the Handled Beakers (SH), a part of the Southern tradition, with possible Wessex/Middle Rhine ancestors, appearing c. 1650-1450 B.C., and representing two groups, the eastern, which eventually was absorbed in Food Vessels, and the western, which became part of the series of Hybrid Bowls and Cups, under Wessex II influence.

Clarke also analysed the various artefacts associated with the different pottery groups, finding a "basic beaker assemblage" common to all groups, and four differential assemblages, associated with his AOC/Bell Beaker, Wessex/Middle Rhine, Northern, and Southern groups. These groupings can be summarized:

1. Basic Beaker Assemblage: flint flakes, blades, and scrapers, barbed and tanged arrowheads, accessory beakers, antler picks, bronze/copper awls, and simple disc beads of jet/shale.
2. Early Assemblage: with AOC/Bell Beakers, copper objects (very few) and gold basket earrings.
3. Middle Rhine Assemblage: with W/MR, N/MR Beakers, tanged copper daggers, sheet gold buttons, type B bracers, simple bone/jet belt rings, bone spatulae, boar's tusks, and flint daggers.
4. Northern Assemblage: with N₁-N₄, polished flint/stone axes, flint flake knives, jet and amber v-perforated buttons, bone awls, pebble hammers, bone pulley belt rings, bone crescents, boar's tusks, type A and C bracers, copper/bronze single riveted daggers, and bronze arm rings.
5. Southern Assemblage: with S₁-S₄, bone spatulae, flint daggers, jet pulley belt rings, stone axe hammers, polished stone/flint axes, flint flake hammers, jet and amber buttons, bone awls, pebble hammers, riveted bronze daggers, types I-III, bronze earrings, bronze arm rings, bronze bracelets, and slate whetstones.

As can be seen, Clarke's groupings, although much elaborated, incorporate little that had not been noted

previously. One area in which he did "break new ground" was in his classification of beaker coarse wares, a subject generally mentioned only in passing¹². Clarke divided the coarse ware into a "secondary ware," which were still "drinking vessels" but either rusticated or undecorated, and a "heavy-duty ware," comprising large, plain and rusticated vessels. Among his coarse wares he recognized also giant storage vessels, bowls, and some possible lamps¹³. He noted two general trends in coarse ware development: the gradual replacement of undecorated secondary ware with rusticated ware, and the changing outlines of the giant storage vessels, conforming to the current beaker group.

In his conclusion, Clarke summarized the pattern he saw emerging both with his Beaker groups and with British Neolithic groups as a whole.

...this phase of British prehistory contains three basic forms of cultural situation: namely, evolving groups of indigenous traditions, evolving intrusive traditions, and situations mixing the two...all three basic situations show a similar tendency towards the pattern: expansion-regionalization-regional divergence-realignment... it seems fair to say that one of the most powerful factors inspiring the formation of new traditions was therefore regional divergence, produced by tenuous intercommunication over the separated areas of a widely expanded cultural network....[Clarke, 1970: 279-80]

Within two years of the appearance of Clarke's volumes, J.N. Lanting and J.D. van der Waals wrote a review article

¹²see for example, Piggott, S. 1963 "Abercromby and After: the Beaker Cultures of the British Isles Re-Examined," in Foster, I.L. and Alcock, A.L. *Culture and Environment: Essays in Honour of Sir Cyril Fox*, pp. 57.

¹³see Clarke, D.L. 1970 *Beaker Pottery of Great Britain and Ireland*, pp. 258, and vol. II, ill. 34-5.

of Clarke, entitled "British Beakers as seen from the Continent." It began with a re-analysis of Clarke's work, pointing up some of the more glaring inconsistencies. Among others (of which the most confusing must be Clarke's discussion of equal importance vs. graded importance in classification schemes) they point to motif 9 of Clarke's basic and earliest motif group, which occurs primarily in late contexts and thus seems misplaced at least, and motif group 4, said by Clarke to be an insular development, which they found to be widely distributed over continental Europe. They disagree with Clarke's basic perception of the value of motif, preferring "...to see in them proofs of inter-group contact; elements easily transferred from one beaker group to the next...."[Lanting & van der Waals, 1972: 27]

In discussing his groups as a whole, Lanting and van der Waals point up the two major weaknesses in Clarke's structure. First, in an effort to place paramount importance on motif, the actual physical location of a beaker became divorced from its classification by motif distribution.

...thus "place" only indirectly serves to determine the beaker groups: a beaker is not a Northern beaker because it is found in the North, but because the motifs of its decoration most frequently occur in the North. A beaker may be a Northern beaker when found in Wessex, even when a whole group of these beakers in Wessex makes clear that they cannot simply be regarded as imports....[Lanting & van der Waals, 1972: 29]

Second, although written with great authority, several of Clarke's "parental" continental groups lack firm foundation.

...a critical review of the continental beakers illustrated by Clarke as representing these "parental" continental groups strongly reinforces our doubts as to the independent continental

origin of the W/MR, N/MR, N/NR and even N1/D groups, for the alleged continental parental groups are either unconvincing in not being significantly "parental" (W/MR and N1/D), or in being entirely hypothetical and lacking both in chronological and geographical homogeneity (N/MR and N/NR)....[Lanting & van der Waals, 1972: 30]

In the second half of their paper, Lanting and van der Waals proposed an entirely new typological scheme, based on the regional development of seven typological phases [fig. 4, pp. 521]. Of these, only the Wessex region contained the complete sequence, which may be summarized thus:

step 1: All-Over-Cord beakers and Maritime Beakers. These represent the only two "invading" groups.

step 2: the beginning of regionalization. Beakers of this step are reminiscent of step 1 in decoration and proportions. developed AOC and AO comb beakers are also represented.

step 3: the beakers of this step have more slender proportions, and a richer variety of motifs.

step 4: rare, and unevenly represented. the beginning of emphasis of the neck, either by a bend or contrasting decoration.

step 5: accentuation of the neck, which is now growing in proportion to the body. decoration shows the first vertical bridging of zones, with metopes and contrast motifs.

step 6: neck becomes more cylindrical, demarcation between neck and body begins to blur. body becomes more globular. decoration zones become contracted, or even fused.

step 7: neck and body fuse entirely, decoration also shows complete zone fusion.

Among the artefact associations, tanged copper daggers are represented in steps 2, 3, and 4. Tanged and riveted daggers appear in step 4, and true riveted daggers in steps 6 and 7. Bracers occur in steps 2 and 3, gold button caps

and gold earrings are restricted to step 2. Steps 5 and 6 contain flint daggers, battle axes, jet buttons and pulley rings.

For Lanting and van der Waals' second area, East Anglia-Kent, step 1 beakers are lacking and step 2 rare. Step 3 is represented both by types similar to Wessex, and by those of "East Anglian" derivation (Clarke's East Anglian group). There are a few beakers of step 4 type, and the rest follow closely with the Wessex steps 5, 6 and 7. In area three, Yorkshire, steps 1 and 2 are represented solely by AOC beakers. Step 3 beakers are rare, step 4 better represented but with beakers differing in shape to those from Wessex, and again steps 5, 6 and 7 which correspond closely to the Wessex types. In the final area, Northeast England--North and South-East Scotland, steps 1 and 2 are represented by AOC, step 3 very rare, step 4 similar to Yorkshire, steps 5 and 6 corresponding to the Wessex model, but step 7 virtually absent. For northern Scotland they were unable to arrange a satisfactory sequence, although they note the appearance of AOC beakers, and those similar to steps 4, 5, and 6.

Within their scheme, Lanting and van der Waals noted two continuing patterns. Firstly, AOC beakers everywhere represented the earliest beaker presence, succeeded by beakers with tooth comb impression. However, the further north they went, the later the tooth comb element appeared. Second, there was clear evidence for the continuation of the AOC tradition parallel to the development of motif decoration, with AOC pottery produced until quite late in the beaker scheme.

On the basis of cross-channel connections, between Dutch grave finds and comparative British material from steps 3, 4

and 5, Lanting and van der Waals established the following chronology for their scheme:

step 1	2100-1900 b.c.
step 2	1950-1850 b.c.
step 3	1900-1800 b.c.
step 4	1850-1750 b.c.
step 5	1800-1650 b.c.
step 6	1700-1550 b.c.
step 7	1600-1500 b.c.

Lanting and van der Waals' work represents the last major typological study of Beaker material. Even as it was being published, the emphasis in Beaker studies was already beginning to shift, concentrating on ecology, economy, and settlement pattern, the paramount concerns in the "new" archaeology. In 1971, D.D.A. Simpson presented two papers which attempted to tackle the difficult problem of Beaker settlement sites. One, titled "The Later Neolithic and Beaker Settlement Site at Northton, Isle of Harris," was a short report of the excavations being carried out there. Northton contained two beaker layers, between two Late Neolithic layers and two Iron Age/Historic middens. In beaker I, two stone built structures were discovered, one oval in plan, containing a hearth, pit, and two distinct floor layers. Beneath the lower layer were a series of stake holes, roughly following the plan of the dry stone walling. Beaker II contained a corbelled cist, with a crouched inhumation of a female, associated with a bone pin. Later Iron age inhumations were also present. Of the vessels present, Simpson felt the majority

...differ little from Beakers from funerary contexts...there are also a small range of 'domestic' vessels, distinguished by their lack of decoration and the use of rather haphazard finger nail impressions.... [Simpson, 1971: 224].

The Beaker I material was decorated with horizontal grooved ornament, Beaker II placed in Lanting and van der Waals' stages 4 and 5. Radiocarbon dates from bone samples were Beaker I 1654 ± 70 b.c. (BM 706) and Beaker II 1531 ± 54 b.c. (BM 707).

In both the Late Neolithic and beaker levels there was seen to be a heavy dependence upon marine resources: limpets, lobster, crab, sea urchin, seal, walrus, and several species of sea bird were represented. Red deer were common, and there were some domestic cattle and sheep. The absence of milling equipment and grain impressions led Simpson to postulate that the Late Neolithic and beaker groups at Northton were dependent on pastoralism, hunting and gathering.

In the second paper, "Beaker Houses and Settlements in Britain," Simpson went on to review the settlement evidence for Britain as a whole. Several points appeared common to the settlement patterns:

1. the majority of beaker finds, in non-sepulchral contexts, came from coastal sites, particularly sand dunes.
2. the evidence from these sites was ambiguous in nature, containing a mixture of hearths, pits, and occasional post holes.
3. in the lowland zone of Britain there was an occurrence of storage pits with beaker pottery, but without associated structures (dichotomy in economy between cereal production-south/east and stock raising-north/west)

Simpson then suggested that the lack of settlement evidence might be due to a failure in research design,

...one may be looking in the wrong place; on the tops of the downs where the barrows lie and not in the valley bottoms where, perhaps significantly, the henges frequently do.... [Simpson, 1971: 132]

He cited nine Beaker settlements where structures of either timber or stone were known, which were

...capable of interpretation as buildings... western sites: Northton, Harris; Woodhead, Cumberland; Gwithian, Cornwall; Easton Down, Wiltshire; Lough Gûr, co. Limerick; Down Patrick, co. Down. ...remaining three...Swarkeston, Derbyshire; Beacon Hill, Yorkshire, and Belle Tout, East Sussex....[Simpson, 1971: 132-5]

Of these, Lough Gûr had produced two oval timber structures, with a maximum diameter of 22 ft., associated with W/MR and N/MR sherds. Beacon Hill contained groups of stones set upright in the soil, which were interpreted as packing for posts forming one end of a roughly oval house, in conjunction with Bell, AOC, and finger nail rusticated pottery. At Gwithian, the layer VIII beaker horizon produced two successive timber structures, both roughly oval, the earlier approximately 15 ft. in diameter, with a pair of outlying posts marking a "porch entrance," the later approximately 25 ft. in diameter. The buildings lay within a palisaded enclosure, and fragments of saddle querns from the gullies of house II were taken as evidence for cereal production. There were also bones of sheep, cattle and pigs, and large quantities of shellfish recovered. Beaker pottery was primarily represented by Bell beaker and coarse wares "...made...by indigenous Neolithic groups in imitation of Beakers...."[Simpson, 1971: 138] Simpson further pointed to the large quantities of pottery and "occupation material" recovered from the centre of some henge sites, suggesting

they may also have been used for occupation¹⁴. On the basis of the distributional and structural evidence he concluded that

...houses occur in isolation, or, at most, in pairs...quite small social and economic units...continental parallels... suggest that Beaker groups adopted the house types--as they did with other aspects of their material culture--from the indigenous population of Neolithic central Europe...the same may be true in the British Isles....[Simpson, 1971: 145, 151]

The question of physical type was addressed in two papers by Brothwell, [1972 and 1974], in which, on the basis of cranial measurements, he re-emphasized the distinction between Early and Late Neolithic/Beaker populations.

...if the Early Neolithic samples are compared with the Late Neolithic/Early Bronze Age groups (Beaker/Food Vessel peoples). It can be seen that these major cultural phases are clearly distinguished by the physical characteristics of the population, the degree of difference suggesting a strong influx of physically distinctive individuals....[Brothwell, 1972: 80]

In evaluating the Beaker/Food Vessel material, he further determined that "...it can be seen that there is a clear division between the Beaker people and those with Food Vessels or lacking cultural associations...."[Brothwell and Krazanowski, 1974: 255] although he admitted that this was based on a very small sample, drawn primarily from tombs. This, as has been pointed out by several papers since [cf. Burgess & Shennan, 1976; Whittle, 1981], must be kept in mind when evaluating the significance of his results.

¹⁴for a discussion of the nature and function of henge monuments, see also Catherall, P.D. "Henge Monuments: Monument or Myth?," pp. 1-9, in the same volume.

Dennell [1976], in a re-consideration of Helbaek's paper, "Early Crops in Southern England,"¹⁵ dealt with the evidence for a shift to barley cultivation in the Late Neolithic/Bronze Age, which Helbaek connected with the "invasions of the Beaker Folk". Beginning with an analysis of the types of evidence employed by Helbaek--grain impressions in pottery and carbonized seeds--he pointed out the several problems such forms of evidence have, most importantly differential distribution, preservation and recovery, all of which can bias sampling techniques. He then considered the actual evidence, which for the Bronze Age consisted of 106 impressions, none from settlements.

...almost all the impressions were found on beakers, a highly idiosyncratic type of ceramic, and one which may well have been associated with a specialized set of activities...secondly, most of the Bronze Age evidence is derived from the chalk downland of Dorset, Wiltshire, and Hampshire which are well suited to barley cultivation....[Dennell, 1976: 17]

Dennell concluded that in fact there was a continuum of both wheat and barley cultivation, beginning in the Neolithic and extending through the Iron Age, with localized preferences for either cultigen, dependent on local environmental conditions.

An expanding body of radiocarbon evidence, together with continuously increasing archaeological data in the 1960's and 1970's, pushed many artefact types back into the Early or Middle Neolithic, in pre-Beaker context. At the same time the growing contradictions within the beaker scheme called for a re-evaluation of the "Beaker Culture" as a

¹⁵Helbaek, H. 1952 "Early Crops in Southern England,"
Proc. Pre. Soc. 18: 204-7.

whole. More and more archaeologists were expressing the sentiment that although beakers could be associated with specific artefact types, they lacked a cohesive social or economic system, settlement or burial pattern. A new way of looking at beaker evidence was needed, and in a paper for "Settlement and Economy (BAR 33)", Burgess and Shennan proposed a remarkably simple solution:

...the way in which the Beaker assemblage is blended everywhere into local settings could indicate that it represents no more than a fashion, spread by other means than migration...such a hypothesis would suggest that the Beaker and its contents were key elements in a prestigious cult or ceremony that achieved international acceptance. It would have started as something comparatively simple, for at the outset the package lacked much of its warrior element. Such accretions would be almost inevitable, the package being adapted and embellished as it spread from region to region....[Burgess & Shennan, 1976: 310-11]

It was not Beaker invaders then, adapting to a wide range of cultural situations, but a "Beaker Cultural Package," being adopted by a wide range of different cultures. Burgess and Shennan examined in turn each of the assumptions associated with the "invader" theory, finding most to be either unfounded, or able to be interpreted in a different light. Summarized, they are:

1. metallurgy, although still associated with beaker pottery, is no longer seen to be brought in by "Beaker prospectors" and "Beaker metallurgists", but rather as incorporated into the beaker package.
2. henges, round barrows, and single inhumation burials are found to pre-date the arrival of beakers. Both cremation and inhumation are considered to be part of the local Neolithic tradition, although there are some grounds for thinking that crouched inhumation increases after the arrival of beakers. These burial and ritual traditions continued throughout the "beaker period" and their development can be viewed as part of a logical local

process. a much more important change is held to have occurred c. 2400 b.c., with the end of the building of collective tombs under long barrows, and of causewayed enclosures.

3. settlement sites, with evidence for cereal cultivation/domesticated are known. it is suggested that these sites be viewed not as "Beaker" settlements, but as settlements in which beaker pottery was one element.
4. brachycephalic/dolicocephalic skull type division-with the arguments mentioned previously, it is also noted that the skeletal remains under examination are often separated by a considerable length of time, bringing into question whether the changes evidenced are sudden or gradual.

The one aspect of the "Beaker people" theory which they retained, although noting the arguments against it¹⁶, was the change from wheat to barley economy, tying it in with their suggestion that the appeal of the beaker package was not the pots themselves, but what they contained (ie. alcohol). Using the ethnographic analogy of the Peyote Cult in the south-western United States, they postulated the beaker package being passed across Europe by inter-tribal contact, each group adding local variations. This was an unfortunate suggestion in many ways, not the least of which was the number of unfruitful avenues of research which it produced. A paper by Scott, titled "Dancing, Drink or Drugs? Comments on the 'Beaker Cult-Package' Hypothesis," exemplifies the lengths to which some researchers carried Burgess and Shennan's theories.

...if a Beaker 'cult-package' did exist, and was centred on rites involving induction of altered states of consciousness, then A. muscaria seems just as reasonable a suggestion for the sacrament as alcohol...it is well documented that rites involving A. muscaria have included the drinking of urine from intoxicated priests...we might well

¹⁶Dennell, R.W. 1976; see also arguments presented above.

examine the possibility, if the Beaker is held to be central in the rites, of the Beaker as a urinal.... [Scott, 1977: 31]

Burgess and Shennan's paper produced a wave of criticisms and compliments, and the publication of a virtual flood of adapted schemes, each embracing part or most of their suggestions, dependent on the extent to which the author was willing to commit himself. Of these, the papers by Case [1976, 1977] and Whittle [1980, 1981] are perhaps more valuable than others [see also table 16, pp. 483, for a comparison of schemes]. Case opted for a "middle ground" stand, "...some settlers from the European continent, but also much interchange between settled communities in these islands, and involving those on the continent...."[Case, 1977: 73] He divides the Beaker period into three phases (early, middle, and late) and assigns very tentative dates.

1. early beaker phase: beginning c. 3000 B.C. associated with the appearance of AOC beaker (with some tentative hint at local development¹⁷) although no clear evidence for a population influx, arrival/assimilation by "fashion"
2. middle beaker phase: c. 2500-2000 B.C. associated with the arrival of settlers from the continent (supported primarily on the acceptance of the change in physical type). These settlers are connected with widespread clearances, mixed farming with wheat and barley, and the introduction of the Bos longifrons breed of cattle, hunting and fishing being of little or no importance. Settlements were small and widely scattered. The introduction of gold and metal-working is also associated with the Middle Beaker people. They were involved in the modification of the henges and stone

¹⁷Case supports his suggestion for a local origin of AOC beakers on two premises: the early radiocarbon dates from Giant's Hill long barrow (BM 191 2460 \pm 150 b.c., 3190 B.C., BM 192 2370 \pm 150 b.c., 3055 B.C.); and the traditions of zonal impressions in both the Middle Neolithic Peterborough, and Sandhills wares. Case, H. "The Beaker Culture in Britain and Ireland," pp. 71-101, in Mercer, R.J. (ed.) 1977 Beakers in Britain and Europe.

circles, which acted as major centres for kinship and ritual.

3. late beaker phase: from c. 2000 B.C. on, the insular persistence of beakers, continuing much the same economy, settlement and ritual customs as in the Middle phase. Eventual replacement of beakers by Food Vessel and Urn complexes.

Although Case claims to take a median approach, "frankly admitting the uncertainties," the actual content of his cultural phases can be seen to reiterate much of the standard "Beaker-People" hypothesis, in a slightly re-arranged fashion. Because he calibrates his dates, in order to express the length of the periods, it is difficult to correlate his chronology with that of the other three schemes; in addition, relying on two early dates, he stretches his Early phase back to be contemporary with Whittle's Pre-Beaker, or Burgess' Meldon Bridge period (these dates are Giant's Hills. Two other dates of this age are available, that of Skateraw, SRR 453, 2496 ± 130 b.c., and Arminghall, BM 152, 2490 ± 150 b.c.) The Early phase is marked by the arrival of AOC and Maritime beakers, most likely by trade contacts of some undefined sort. Case states that "...the earliest dated beaker pottery in these islands is cord-impressed...."[Case, 1977: 73]. In fact, of the earliest known pottery, only that from Giant's Hills is cord-impressed. Arminghall is rusticated ware, the Skateraw beaker is tooth comb, and the Irish sites are notably lacking in cord-impressed beaker ware. While it seems likely that AOC beakers were among the earliest beaker wares in Britain, there is no clear radiocarbon evidence for the primacy of all-over-cord decoration [§see fig. 3, pp. 520].

This is unfortunate, for Case would like to derive the British AOC decoration from either Peterborough or Sandhills wares. This is an elaboration of earlier ideas;¹⁸

...one can sum up the evidence from north and south as strongly suggesting the overlap of beakers with Sandhills ware at quite an early stage in its development....[Case, 1961: 205]

An examination of Sandhills ware shows, however, that beyond the idea of cord decoration, there is little resemblance.

The Middle phase, c. 2600-2000 B.C., is marked by the arrival of actual settlers, to be associated with beakers, metallurgy, and brachycephalic skull shape. These settlers engaged in renewed land clearance and "energetic farming," introducing perhaps the Bos longifrons strain of cattle. They continued the tradition of public monument building, refurbishing existing monuments and constructing new ones. In addition, they initiated one distinct rite--single inhumation under a round mound.

The Late phase, from c. 2000 B.C. on, sees a continuation of the patterns established in the Middle period, with the insular development of beaker types. Case's Middle phase can be correlated with Burgess' Mt. Pleasant period, or Whittle's Early Beaker phase.

Whittle, however, is a strong advocate of the "cult package" hypothesis, and sets out in his paper "Later Neolithic Society in Britain: a re-alignment," to "...argue

¹⁸Case, H.J. 1961 "Irish Neolithic pottery: distribution and sequence," *Proc. Prehist. Soc.* 27.

against an ethnic interpretation of the beaker phenomenon...." [Whittle, 1981: 298].

...there is no clear evidence for distinct or separate Beaker settlement before the Late phase, in Case's terms for convenience, and that by this phase (if not earlier) there are anyway serious grounds for doubting the meaning of "separate Beaker settlement".... [Whittle, 1981: 307]

Included in his list of pre-beaker or (non-beaker) innovations are the brachycephalic skull type, burial in round mounds with individually distinct grave goods, metallurgy, flat based pottery, substantial communal monuments, and renewal of land clearance. Essentially a reply to Case's paper of 1977, there are areas where Whittle goes astray, particularly in his arguments against the introduction of the brachycephalic skull type with beaker pottery, much of which has the flavour of "special pleading," and in his attempts to negate the beaker settlement evidence, arguing against his notion that

...there is general agreement that from a comparatively early stage of Beaker development in this country, mortuary assemblages are paralleled by a series of settlement sites.... [Whittle, 1981: 306]

(In fact, just the opposite is true, with authors on the period decrying the general lack of any beaker settlement sites.) He does, nevertheless, make several useful points, especially in his divisions of beaker mortuary assemblages. Into his Pre-Beaker phase, c. 2500-2200/2100 b.c., fall all the innovations mentioned above, and the earliest metallurgy (differing from Burgess, who sees metallurgy as contemporary with beakers). The settlement pattern is a continuation of the Earlier Neolithic. The Early Beaker phase, c. 2200/2100-1800/1700 b.c. sees a further continuation in

settlement patterns, ceremonial architecture, and Late Neolithic pottery styles, with the addition of the earlier beaker style, almost entirely as funerary wares. Even in instances where beakers occur in putatively domestic contexts, Whittle argues against them having a domestic role,

...the contemporary use of different ceramic styles should be considered in the context of a working hypothesis which seeks to assign Beaker pottery to a specialized and probably prestige role....[Whittle, 1981: 311]

Whittle divides beaker funerary occurrences into two phases, the first of which is characterised by the earliest styles, without associated artefacts, and the second, the early-middle styles, with "early associations," copper tanged daggers, bracers, barbed and tanged arrowheads, and gold work. In the Late Beaker/Urn phase, c. 1800/1700-1500 b.c., beakers first begin to appear in "true" domestic contexts as, Whittle argues, their prestige lessens, and they are superseded by new status goods. This phase is marked by the end of the great public monuments and of the Late Neolithic pottery styles. Funerary contexts can again be divided, the early phase consisting of late beakers with "developed" grave goods; bronze riveted daggers, V-perforated buttons, pulley belt rings, flint daggers, shaft-hole axes, and others, and the late phase, where the burial rite is ostensibly "beaker burial without the beaker," either being replaced by a Food Vessel or Urn, or left out entirely. This phase, as Burgess' Overton period, is contemporary with the development of Wessex I.

Within his view of the Neolithic, Beakers are confined to a specialized and prestige role. Whittle concludes that

...Beaker pottery was a new addition to the artefact range. Initially unassociated, its novelty and continental background would have provided suitable exclusivity and high status. Subsequently--and rather rapidly according to the available chronology--high status passed to the users of pots plus associated assemblages containing further novel and distinctive prestige items....[Whittle, 1981: 331]

Set against these two schemes is that of Taylor. Although the chronology of events is similar, the social viewpoint is radically different. She divides the beaker development into three phases, the Formative, Classical, and Baroque. The Formative phase, c. 2100 b.c. is described thus:

...the initial expansion of the Formative period...coincide with those beakers described as All-over ornamented (AOO), All-over corded (AOC); or Maritime, but the incentive is debated as to whether it was due to pioneering, economic population pressures, prospecting, exploration, or only trade....[Taylor, 1983: 226]

The Classical phase, roughly 2100-1700 b.c., was marked by the concrete and distinct movement of a group of "colonizers" into the British Isles, bringing their pottery, ritual traditions, knowledge of metallurgy, and other aspects of their culture. These "colonizers" represented a blood-linked elite, and formed a "ruling veneer" over the existing populations whom they dominated in every aspect. The pottery of this period is marked by the fine "early" beaker styles, and their associated artefacts, including gold work. In the succeeding Baroque phase, the high quality beaker of the earlier period is degraded, coinciding with the increasing regional variation in burial and ritual practice, perhaps indicating a loosening and/or slipping of elite control. This period also saw the development of the Wessex and Armorican grave series, as "beaker graves without beakers."

There are a number of weaknesses in these arguments, not the least of which is a tendency to overstatement reflected in phrases such as "...political system similar to a nation..." and "...conserving traits of an overrun society...." There is a serious question at the outset as to the make-up of her Pan-Beaker Culture; she states that the origins of the Beaker Culture lie in the Czech/Polish area. With the current primacy of Dutch beaker dates, is she perhaps suggesting that the beaker itself is secondary to the development of the Beaker Culture?

Perhaps the most unfortunate argument is that concerning the nature of the Wessex and Armorican grave groups, which form "...complementary bodies of evidence, both emanate from Classical Beaker backgrounds...."[Taylor, 1983: 237]. Having warned against paralleling cultures of disparate backgrounds, she makes just this mistake in comparing these two "rich grave" cultures, which although both beaker-related, are the results of widely differing circumstances.

The role of Beaker pottery as a specialist form within the Neolithic context is elaborated by Clarke in his article "The Beaker Network-- Social and Economic Models."

...beaker fine wares were major vehicles of rank, prestige, and status display, very expensive to produce both in man hours and in contemporary value terms, and therefore exchanged for these reasons over considerable distances, between various communities, in a context where their utilitarian and functional values were secondary....[Clarke, 1976: 462]

They were semi-specialist products, with large distribution and replication areas, and therefore, Clarke felt, more susceptible to rapid changes in fashion. The

domestic wares, on the other hand, locally produced and short-lived, would tend to represent more stable and long-lived local potting traditions. Thus one would tend to see, he postulated, assemblages united over large geographical areas by their fine wares, but differentiated by their regional styles of domestic pottery--the situation with beaker pottery in both Britain and the continent. Recognizing that "...the beaker phenomenon is a different phenomenon in different areas and different though related explanations may be required for these differing contexts...." [Clarke, 1976: 461] he sets forth two ways of measuring beaker influence:

1. regional presence:

- a. type 1: high density and frequency of decorated beaker sites (100-1000+), many domestic sites known (100's), considerable local beaker continuity and time depth (300-500 yrs. ¹⁴C) areas of type 1 presence--Netherlands, West Germany, Eastern Britain, France, Northwestern Iberia
- b. type 2: low density and frequency of decorated beaker sites (10-100), few domestic sites known (10's), considerable non-beaker continuity with little evidence of beaker time depth (100-300 yrs.) areas of type 2 presence: Denmark, Norway, Ireland, Czechoslovakia, Poland, Hungary, Austria, Italy, Southeastern Iberia, West Mediterranean islands and North Africa.

2. domestic presence:

- a. type A: high proportion of decorated vessels in assemblage (15-30 %) associated with beaker domestic wares. areas include most Eastern British and some Irish sites.
- b. type B: low proportion of decorated beakers in the assemblage (1-10%) associated with domestic wares of some other group. areas include some Irish sites.

Taken together, these two types of presence might be seen to produce

...a beaker network core area made up of regional nodes or foci with a regular reciprocal, long-lived and intricate exchange of commodities and kin, a cultural group presumably embracing the area of beaker origins...around these nuclei...the peripheral skirt.... [Clarke, 1976: 474]

However Clarke warns against taking these groupings as anything but nominal, and suggests that the most fruitful area for answering the beaker "problem" will lie in regional studies of domestic sites.

Studies of this sort have been carried out recently, by Bamford in the Fen Edge and East Anglia, and by Gibson, more generally. Bamford's work [1982] led her to conclude that there was no standard form of beaker house

...all sites, whether small or large, well or poorly preserved, and of whichever Beaker, they are, to all appearances, of a similar type. They are random in plan, without traces of substantial structure, but with pits of various sizes, hearths which are, at best, no more than scooped-out hollows, and roughly circular "floors"--either working areas or simply middens.... [Bamford, 1982: 40]

Discussing the economic conditions, she noted that the Hockwold-cum-Wilton excavations produced evidence of a mixed farming economy, with barley cultivation, ox, sheep, goat, and pig, and hunting attested to perhaps, by deer bone. There were also lumps of fired clay recovered, interpreted as a kiln--evidence for local pottery manufacture. In attempting to address the "why" of beaker appearance in the British Isles, Bamford suggested that "...the people who first brought beakers to Britain advocated a new ideology

which caught the imagination of Neolithic farmers..." [Bamford, 1982: 1].

Although there is now general agreement to view beakers as a specialized pottery complex rather than a distinct cultural group, the boundaries of that pottery complex, in both time and space, are still very indistinct. The shift from "Beaker People" to "beaker pots" has created more questions than it has answered. One of these is the question of origins. Burgess and Shennan recognized this in their work, "...if one thinks of the spread of an idea, rather than a movement of people, then a single ultimate origin seems called for...." [Burgess & Shennan, 1976: 313]. A second, and more perplexing question, was posed by Clarke

...a more basic objection is that, at best, these explanations suggest "how" certain circumstances arose but almost none of them move on to "why" scattered communities over vast distances came to take-up and later gave-up using certain fine pottery and other distinctive artefacts.... [Clarke, 1976: 461]

Still another is the accurate assessment of the effect of beakers on the cultures they are found within. Burgess would argue for a very minimal effect. "...after c. 2150 b.c., when the Beaker tradition began to filter in from the continent...this affected most societies only superficially...." [Burgess, 1980: 61] Others, such as Case, would see a more profound influence. If there was an actual movement of people from the continent, which still seems to be held to be true although to varying degrees, what was their relation to the local neolithic population? If beakers are primarily a form of ritual pottery, how, and to what extent were they integrated into existing Neolithic traditions? To answer these questions it is necessary to begin by examining the basic components of the "Beaker



Culture", and its relationships to concurrent artefact types.

1.2. Typology

Clarke, in his catalogue of British beakers, set forth a fairly exacting methodology for beaker classification. In rendering past systems, he first recognized that

...each beaker, and pottery in general, shows four major variable qualities, all of which can change regionally and with passing time.... [Clarke, 1970: 5].

These are:

1. shape
2. decorative motifs
3. position of decoration (style)
4. paste and firing

In order to perform his matrix analysis, he divided and subdivided each of these areas into a number of well-defined traits, which then could be used to describe each beaker in relatively close detail.

In his description of beaker shape, he concluded that the "...most important feature of the vessel is the relative proportion of the constitutional elements...."[Clarke, 1970: 26] These he divided into a series of five ratios: rim diameter/waist diameter, belly diameter/waist diameter, foot diameter/waist diameter, rim height/waist diameter, and rim height from base/waist height from base. On analysis, these ratios were found to yield nine shape variants [illustrated on pp. 423, volume 2]. Style, or position of decoration, was similarly divided, following the "zone-contraction"

model of van der Waals and Glasbergen¹⁹. Clarke discerned six patterns of zone arrangement present on British beakers (styles o-e).

...one of the important features of these styles is that four of them are European (o. a, b, c) and two of them ,with rare exceptions, purely British (d, e, and certain versions of o).... [Clarke, 1970: 12]

Summarized they are:

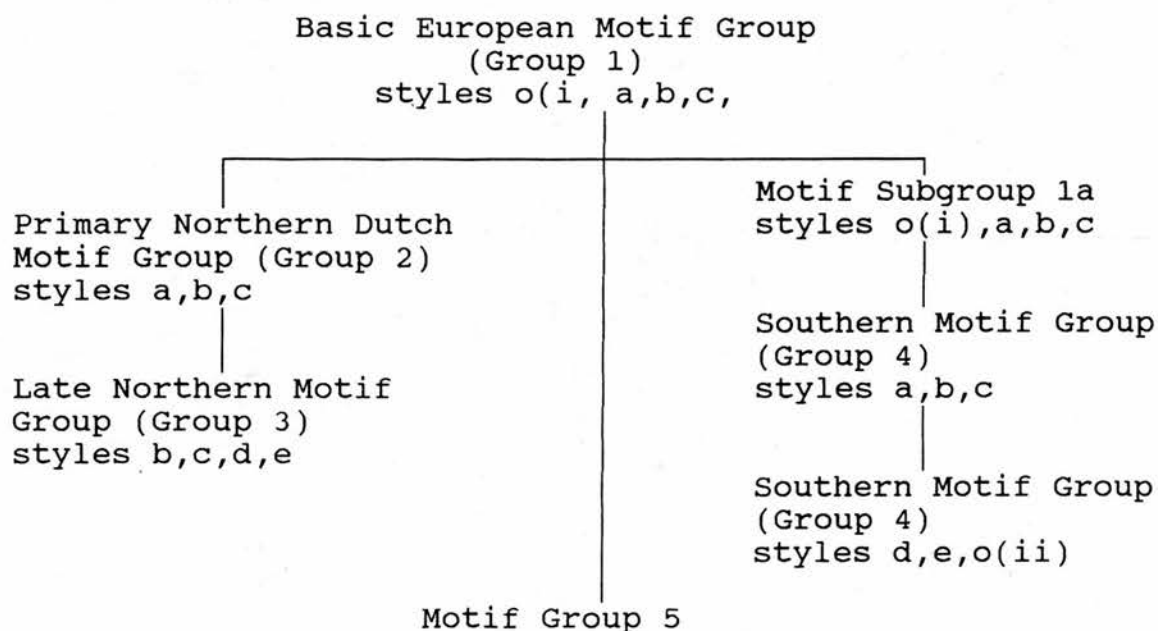
1. style o(i): the decorative motif extends over the entire beaker surface (most commonly all over cord or all over comb patterns).
2. style a: the surface is marked out into multiple roughly equally spaced narrow zones.
3. style b: the surface is divided into broad bands of decoration and plain burnishing. the spacing need not be equal; in most the undecorated zone is broader.
4. style c: the process of zone contraction is further explored, giving a distinct "three band" zone effect.
5. style d: the fully contracted zonal decoration, with bridging motifs in the broad, undecorated bands.
6. style e: the surface is divided into two approximately equal decorated zones.
7. style o(ii): a variant of style o, a return to the all over decorated form.

The motifs Clarke broke down into their constituent elements, thirty-eight individual patterns representing what he considered to be five motif groups. Motif group 1 represented the "Basic or European Motif Group," virtually all of which are variants of the line filled zone. Group 2,

¹⁹Lanting, J.N. and van der Waals, J.D. 1972 "British beakers as seen from the continent: a review article," *Helinium* 12: 20-46.

the "Primary Northern British/Dutch" group, are represented by "fringes," or "...decorative borders unsealed by any capping line, standing upon, or pendant from, the zone borders...."[Clarke, 1970: 19]. Clarke saw these motifs as confined to the Low Countries and their immediate borders. Groups 3 and 4 (Late Northern, and Southern) were regionally defined groups, with group 4 noted for its use of the "floating motif," while group 5, marked by the development of panels and metopes, represented "insular variations on an extensive European series...."[Clarke, 1970: 21]. Clarke felt that the decorative styles and motif groups had a direct regional and developmental relationship [op. cit. fig. III, pp. 17].

Table 2. Beaker Motif Groups



Motif subgroup 1a incorporated all the basic European motifs of group 1, and included the "filled triangle" motif (no. 29), with special emphasis placed on motifs 4, 5, 6, and 9; strongly connected, Clarke felt, with beakers of the Middle Rhine.

Based then on these distinctions of shape, style, and motif, Clarke's matrix analysis produced what he felt were "...six main trait agglomerations...."[Clarke, 1970: 29] He illustrated these groups diagrammatically [volume 2, pp. 471] and their major features can be outlined thus:

- A. Group 1: beakers that are almost as broad as they are tall, with the waist or narrowest diameter usually just below an everted concave neck. the foot diameter would be small. most common decorative styles would be all-over motifs (style o(i)) or multiple equal-width zones. motifs of the basic motif group.
- B. Group 1/2: beakers with an increasing "slimness" of proportions, so that the ratio of rim height to waist diameter is much larger. position of the waist is more flexible, belly diameter is larger than the waist. some cord decoration persists, together with decoration within the rim. all-over and equal-zoned styles, with the new development of style b. beside the basic motifs, the fringe motifs of motif group 2 and 3 are used.
- C. Group 1/3: beakers with the "narrow mouth" effect--the narrowest diameter, the waist, is usually only just below the rim. globular profile, diameter of the foot is very small. basic motif group 1 and the fringe group 2, styles o(i), a, b, with occasional use of the "barbed-wire" decorative technique.
- D. Group 2: more similar to group 1/2 than 1/3. development of a distinct neck, flaring cup-like mouth. style b continues, with the development of the new, fully contracted style c. motif groups 2 and 3 are predominate.
- E. Group 2/3: shape features of group two continue with increasing development of the length of the neck. style c continues, possibly with the development of style d. motif group 3 and motif group 4 current, with the increased use of panels and metopes.

F. Group 3: development of a biconical shape, with rim narrower than waist diameter. the neck more or less cylindrical. full use of the new styles d and e, development of the floating motifs of motif group 4, especially the lozenge and hexagon.

The last of Clarke's criteria, paste and firing, was considered separately by him, among the minor characteristics. He concluded that "...the paste and firing of the beakers can be shown to be largely a common beaker group tradition, varying in the subgroups largely within geological constraints...."[Clarke, 1970: 5] A superficial analysis of the grit added to beaker fabric produced inconclusive results, merely noting that grog, flint, and stone were the primary additives. No explanation of the sampling technique or statistical procedures is given, making further analysis impossible. Similarly, with the analysis of surface colour, there is no definition of the colour scale, which Clarke in fact refers to as "arbitrary," nor any explanation of the procedures.

Clarke used the results of his matrix analysis to define his sixteen groups [as discussed in the previous chapter, see also table 14, pp. 480]. His typology was largely concerned with establishing a chronology for the "beaker period," c. 2100-1500 b.c. While most of his cultural implications are no longer in current use, his beaker groups, because of their specificity and clear definition, remain the primary system for classifying new beaker material. The second typological system, that proposed by Lanting and van der Waals, although its chronological and cultural implications are considered to fit more closely with the present evidence, lack the "sharpness" of Clarke's groups [also table 15, pp 481]. Because of this, limited attempts have been made at various times to integrate the two systems with fair to moderate success, but usually

without clear reference to methods or implications of such an integration. Therefore a systematic interpolation of these two systems is desirable, both in terms of producing a working typology and basic chronology for analysis of the wealth of material not considered in Clarke's thesis.

The structure of the typology which Lanting and van der Waals proposed rested on the nuclear/peripheral hypothesis, first set out in van der Waals and Glasbergen's paper [1955]. The concept involves nodal or "core" areas, wherein the development and progression of beaker styles is more rapid and aggressive, and peripheral or outlying areas, which show a retarded or truncated development by comparison. In observing British beakers as a whole, Lanting and van der Waals felt that they could recognize the same nodal/peripheral pattern, with the nodal areas being Wessex, East Anglia, Yorkshire, Northumberland-Southeast Scotland, and Aberdeenshire. Wessex was the key area here; the only one in which they felt that they could observe all seven of their developmental stages. It was the pattern they laid out for Wessex which they used, with minor modifications, to define the other nodal areas. Summarized, those patterns are:

- A. Wessex: including the counties of Berkshire, Dorset, Hampshire, Oxfordshire, Somerset, and Wiltshire
 - 1. step 1--early AOC and Maritime beaker
 - 2. step 2--the beginnings of regional development. these beakers are marked by the low position of the belly carination, and by decoration in simple zones or pairs of zones, of maritime type. this group also includes the developed AOC forms (beakers with an undecorated zone below the rim)
 - 3. step 3--beakers of more slender proportions, with the belly carination higher up the body. AO tooth comb decoration in horizontal bands a common decorative technique.

4. step 4--(rare) beginning of emphasis on the neck, either by a sharp bend, or by contrasting decoration. decoration of horizontal grooved lines is particularly characteristic. in the body decoration, the horizontal bordering lines begin to disappear.
5. step 5--accentuation of the neck continues, with a sharp bend, and the neck beginning to grow in length. zone contraction is evident, with vertical bridging of zones by metopes and contrast motifs.
6. step 6--the neck/body line begins to blur, the neck becomes more and more cylindrical, the belly lower and globular in form. contraction of zones to two or three bands.
7. step 7--fusion of the neck and body. complete fusion of zones, with decoration over the entire surface.

B. East Anglia-Kent: including the counties of Cambridge, Essex, Norfolk, Suffolk, and Kent

1. step 1 and 2--rare or lacking, AOC forms.
2. step 3--beakers similar to Wessex 3 and those with the distinct "east anglian" shape; globular or ovoid, with a very short everted rim. decoration in several techniques, grooved line, barbed wire, toothcomb, finger pinch.
3. step 4--beakers with a sharp neck bend, and a strongly everted "funnel neck".
4. step 5, 6, 7--similar to Wessex.

C. Yorkshire:

1. step 1 and 2--earlier and later AOC forms
2. step 3--beakers with a fluent outline and slender proportions, with decoration still in zones or zone groups.
3. step 4--sharp bend in neck, with relatively short funnel-shape rims, groove lines on neck marking neck/body break particularly characteristic.
4. step 5, 6, 7--as Wessex, with broader and lower proportions.

D. Northumberland-Southeast Scotland: including the counties of Northumberland, Berwick, East-, West-, and Midlothian, Peebles, Roxburgh, and Selkirk

1. step 1 and 2--earlier and later AOC forms
2. step 3--rare
3. step 4--beginning of tooth comb decoration. also groove decoration, as Yorkshire 4.
4. step 5, 6, 7--as Wessex, with step 7 rare.

E. Aberdeenshire: including the counties of Aberdeenshire, Angus, Banffshire, Kincardineshire, Moray, and Nairn

Lanting and van der Waals were unable to resolve a satisfactory scheme for Aberdeenshire, but they did make the following comments.

1. the earlier steps are represented by AOC forms.
2. tooth comb decoration begins late, at step 4 or later.
3. most beakers seem to fall in steps 4, 5, and 6, with step 7 rare or non-existent.

With some 950 of Clarke's drawings to choose from, Lanting and van der Waals carefully selected those beakers which best represented their groupings as illustrations. In their key group (Wessex), some 43 out of a possible 197 beakers are displayed in figure 1 of their text. While their care and conciseness is highly admirable, their text figures do not provide an adequate corpus to express the range and diversity contained within their groups, making them less useful for typing of subsequent finds. In addition, by providing no sequence for Aberdeenshire, they avoid a large and very important area of beaker development.

A re-evaluation of their work, therefore, had two objectives:

1. to attempt to incorporate all of Clarke's corpus into the seven step scheme. this would include a re-examination of the nodal groups themselves, on the basis of internal consistency and logic in the order of development of these steps. it would also include the addition of new groupings, where necessary, to accommodate beakers from counties not included in the original scheme.
2. to attempt to provide a working and reasonable step scheme for Aberdeenshire.²⁰

With these objectives in mind, the methodology employed involved, first, xeroxing all of Clarke's beaker illustrations, and dividing them up, at the lowest level by county, and at the upper level, by nodal/nuclear or peripheral group. This involved the establishment of seven "working" groups; four nuclear areas (with Aberdeenshire and South-east Scotland considered together) and three peripheral areas (Central England, North and West Scotland, and Wales).

These "working" groups are:

1. Wessex: including the counties of Berkshire, Buckinghamshire, Cornwall, Devon, Dorset, Hampshire, Hertfordshire, Oxfordshire, Somerset, Wiltshire, and the Isle of Wight.
2. East Anglia: including the counties of Bedfordshire, Cambridge, Essex, Huntingdon, Kent, Middlesex and London, Norfolk, Suffolk, Surrey, and Sussex.
3. Yorkshire: including the counties of Cumberland, Durham, Lancashire, Northumberland, Westmorland, and Yorkshire.

²⁰at the time this work was initially carried out, Shepherd's re-appraisal of the Aberdeenshire beakers had not yet been published. Shepherd, I.A.G. Powerful Pots: beakers in north-east prehistory, University of Aberdeen, 1986.

4. North and East Scotland (Aberdeenshire): including Aberdeenshire, Angus, Banffshire, Berwick, Clackmannan, East Lothian, Fife, Kincardineshire, Kinross-shire, Midlothian, Moray, Nairn, Peebles, Perth, Roxburgh, Selkirk, Stirling, and West Lothian.
5. Central England: including Cheshire, Derby, Gloucester, Herefordshire, Leicester, Lincolnshire, Northampton, Nottinghamshire, Rutland, Shropshire, Staffordshire, Warwickshire, and Worcestershire
6. North and West Scotland: including Argyll, Arran, Ayrshire, Bute, Caithness, Dumbarton, Dumfriesshire, Harris, Inverness-shire, Islay, Jura, Kirkcudbrightshire, Lanarkshire, Lewis, Mull, Orkney, Renfrewshire, Ross and Cromarty, Skye, Sutherland, North and South Uist, Wigtownshire, and Shetland.
7. Wales: Anglesey, Brecknock, Caernarvonshire, Cardiganshire, Carmarthenshire, Denbighshire, Flintshire, Glamorganshire, Merioneth, Monmouth, Montgomery, Pembrokeshire, and Radnor.

The latter three, unlike the first four, have a certain element of "catch-all" groupings. This is particularly true of the Welsh group, where the lack of material available (or perhaps the lack of fieldwork) makes this grouping the least satisfactory of the seven.

The beakers were then divided into Lanting and van der Waals' steps 1-7, using the criteria outlined above [pp. 57-59]. Emphasis was placed on shape and degree of zone contraction (and/or placement of decoration) before motifs, although certain decorational techniques were considered indicative of particular steps, for instance horizontal comb or groove lines on the neck in step 4. A summary is given in appendix 1 [pp. 428].

The Northeastern Scottish, or Aberdeenshire group was divided on the basis of Lanting and van der Waals' suggestions, with reference to the criteria for their other four groupings. The division between steps 5 and 6 was based on typological development of shape, following the overall trend towards shorter necks and a more squat form,

and does not necessarily represent a chronological separation. The typological criteria were as follows²¹:

1. step 1: early AOC forms, with a "classic" shape, and decoration up to the rim.
2. step 2: later AOC forms, and "maritime" beakers.
3. step 3: fluid outline, with the "S" profile.
4. step 4: beginning of emphasis on the neck, by either a sharp bend, contrasting decoration, or horizontal groove lines.
5. step 5: shortening of the neck, with zone contraction to two or three broad zones. step 5 beakers are still relatively "tall" and "thin."
6. step 6: as step 5, with the profile being now "short" and "squat."
7. step 7: fusion of neck and body, as Wessex, with all-over motifs. very squat profile.

While working with the Lanting and van der Waals' scheme, several things became apparent. First, the range of diversity in shape and decoration, within the nodal/nuclear groups, was much greater than anticipated. The boundaries appear quite indistinct (for instance, between Hampshire and Surrey), creating the impression that the "borders" between different nodal, or nodal and non-nodal areas may be more arbitrary than absolute. Second, the divisions between steps, particularly in the South-east Scotland and Aberdeenshire groups, were found to be less absolute and more clinal in nature. This was particularly acute for steps 2-3 in the Wessex area, and steps 5-6 in Aberdeenshire, where frequently division between these steps could not be made with any certainty.

²¹with the proviso, after Shepherd, that AOC and mixed cord and comb forms occur throughout steps 1-7.

A statistical analysis of these working groups showed that the East Anglia-Kent grouping was the largest, having 24.1% of all beakers (235 out of 976 total). Wessex was next, with 22.1%, followed by Aberdeenshire, 19.5%, Yorkshire, 17.1%, Central England, 6.7%, North and West Scotland, 6.4%, and Wales, 4.2%. By individual counties, Yorkshire had the largest percentage of beakers, at 11.1%, followed by Aberdeen and Wiltshire, with 7.6%, and Suffolk, with 6.7%. Of these four, only Wiltshire had a density (number of beakers/area, sq. miles) greater than 0.5%, at 0.6%; Aberdeen and Suffolk had densities of 0.4%, and Yorkshire 0.2%.

Looking at the percentage of beakers per step, step 6 is the largest, with 21.52% of the total, followed by step 5, with 19.16%, step 3, with 18.75%, step 7, 13.52%, step 4, 13.01%, step 2, 11.78%, and step 1, 2.25%. Taking each group individually, the following percentages are observed:

Table 3: Summary of % Beakers by Group and Step

AREA	1	2	3	4	5	6	7
Wessex	3.24	25.00	16.20	6.94	13.43	16.20	18.98
East Anglia	0.85	8.94	37.45	8.51	18.72	14.47	11.06
Yorkshire	1.80	8.38	13.17	29.34	19.16	19.67	8.38
Central	0.00	3.08	15.38	6.15	27.69	27.69	20.00
Aberdeen	4.21	7.37	5.26	16.32	21.58	29.47	15.79
North-West Scotland	3.23	14.52	22.58	4.84	14.52	27.42	12.90
Wales	0.00	2.44	9.76	12.20	34.14	41.46	0.00

As a general pattern, the largest percentage of beakers per step shifts from step 2 to step 6 moving south to north, east to west. The bulk of the beakers in an area shifts in a similar fashion, so that step 2 is most prevalent in Wessex, step 3 in East Anglia, step 4 in Yorkshire, step 5 in Central England, step 6 in Aberdeen, North-west Scotland and Wales. In addition, several counties show an odd distribution, wherein all their beakers are concentrated in one step (see Buckinghamshire, Bute, Hertfordshire, Montgomery, Mull, Nottingham, Pembroke, and the Uists). Both of these patterns hint at a spatial component in this typology, which will be considered in greater depth later.

In conjunction with the few radiocarbon dates referred to by Lanting and van der Waals in their work, the following stratigraphies from Clarke's analysis can be used to support the step scheme [§see table 18, pp. 484].

As can be seen, for example in the stratigraphy for Aldro 116, Yorkshire, the typological groupings do not always represent chronologically distinct phases, especially in steps 4, 5, 6, and 7.

The examination of associated artefacts follows essentially the typology set out by Lanting and van der Waals [§table 19, pp. 486]. Gold work, copper tanged daggers, and bracers occur primarily in steps 2 and 3, bronze daggers, v-perforated buttons, and pulley rings in steps 4 through 7. Flint daggers occur in steps 3-5, and flint "flakes" in steps 3-7, with the majority falling in the later steps. Other associations include flint "strikers" and pieces of iron ore, which are confined to steps 5-6, hammer stones, whetstones, and shaft hole axes, in steps 5-7. Bone awls occur in steps 2-4, bronze awls in 5-7. Barbed and tanged arrowheads are ubiquitous, and are

5-7. Barbed and tanged arrowheads are ubiquitous, and are the most common non-ceramic association, followed by V-perforated buttons, bronze daggers, and pulley rings.

An examination of the burial orientations likewise adds little to the Lanting and van der Waals picture [stable 20, pp. 491]. In Wessex there seems to be a clear distinction between male and female burial, with males orientated north, and females, south. This pattern breaks down however in step 7, with both males and females buried with a northern orientation. In the Yorkshire area the pattern is turned 90°, with males buried primarily orientated east (particularly north-east), and females west. In the Aberdeenshire area, a north-east orientation also seems to have been preferred for male burials (there is not sufficient data available from Clarke to determine a pattern in female burial orientation).

This examination suggested, finally, that the step scheme could be carried to "peripheral" areas, although with lesser success. This is due both to the smaller number of examples available, and to the continuing trend of "step contraction," also noted in the nodal areas, particularly in the north, where steps 1, 2 and 7 tend to be rare or missing, and steps 4, 5, and 6 merge. This is particularly acute in Wales, where steps 1 and 7 are absent, step 2 rare, and the majority of beakers occur in steps 5 and 6.

1.3. Spatial Distribution

Having examined Clarke's and Lanting and van der Waals' typological schemes, it became clear that these were not entirely satisfactory methods for characterising beaker development. Several factors contributed to this conclusion: the difficulty in placing into groups beakers on the edge of nodal/nuclear areas, the shift in percentage

of beakers per step from south to north, the differing typological criteria for different nodal groups. All these factors suggested at first an element of "regionalization" in beaker development, which had often been hinted at in the literature but very little discussed. In an attempt to better quantify this phenomenon, a spatial analysis of beaker types was undertaken, with the objectives to:

1. see if there is a spatial segregation between the different beaker steps.
2. if a spatial segregation exists, can it be related to regional differences?
3. if a spatial segregation exists, can it be related to the existing radiocarbon chronology?

In order to examine the beaker distribution to best effect, Clarke's drawings were reduced to 35% of their original size, and placed in their geographical location on Ordnance Survey maps of 1:250 000. Contours of 200 ft. and 800 ft. were marked. For areas with large beaker concentrations (for instance Stonehenge), insets were used, at 1:125 000, and 1:50 000. The areas examined were Lanting and van der Waals' nuclear zones, chosen both for their importance in the typological scheme, and for their relatively large numbers of beakers, in the hope of obtaining as accurate a picture as possible. Summary maps were then drawn, giving the beaker steps in place of the actual beaker illustrations. From these, concentrations of "early" (steps 1-3) and "later" (steps 4-7) beaker types were noted and marked, and an overall summary of "early" and "late" beaker distribution plotted. A discussion of the results for each nuclear area is given below.

1. East Anglia and the Fen Edge: including the counties of Essex, Suffolk, Norfolk, Cambridge, Bedford, Huntingdon, Northampton, Rutland, and Lincoln [fig. 5, pp. 522].

One of the earliest analyses of beaker development in this area was undertaken by Fox in 1923, for Archaeology of the Cambridge Region. In that work he included a sketch map of beaker distribution in south-east England [Fox, 1923: 13] which showed concentrations along the Essex, Suffolk, and Norfolk coasts, and at the boundaries of Norfolk, Suffolk, and Cambridge, on the edge of the fens. These two distributions are confirmed by Clarke's work, and represent two spatially segregated groups which occur in this region.

There is first a concentrated distribution of early types (steps 1, 2, and 3) along the East Anglian coast, with a small gap between Aldeburgh and Great Yarmouth. These comprise mainly AOO, E, W/MR, and the two "regional" types which both Clarke and Lanting and van der Waals recognized, East Anglian and BW. The fact that these last two types are confined almost completely to the area between Ipswich and Southend speaks strongly for a specific, and local development. There are other scatters of early types--in the area between Peterborough and Huntingdon, in the area around Downham Market, and Chippenham, but these are largely intermingled with developed southern beakers.

The developed types, steps 4-7, Clarke's S_1 - S_4 , while common throughout the inland East Anglian area, have a particular concentration in the roughly rectangular region between Newmarket and Downham Market, Thetford and Ely. This group, with the 200 ft. contour on its southern border, is a mixture of Clarke's southern and northern types, with the southern predominant, all falling largely into steps 5 and 6. Included in this group are the sites of Chippenham, Lakenheath, and Hockwold-cum-Wilton. It is interesting to note that this area also includes the mines at Grimes Graves, which are known to have been in operation during the

beaker period²². Although a quantity of Grooved Ware has come from the shafts, no beaker material has yet been found.

Also interesting to note, as it is a pattern which occurs in other areas, are the locations in which, in close proximity, beakers of widely differing typological stages occur. Examples are Eriswell (BW, S3), Runciton Holme (E Angl., N₂, N₃, S₃) and Peterborough, Fengate (AOC, W/MR, S₂).

2. Wessex: including the counties of Somerset, Wiltshire, Gloucester, Oxford, Berkshire, Hampshire, Dorset, Devon (east of Exeter) and the Isle of Wight [fig. 6, pp. 523].

The picture in this area, roughly comprising a 90 mile radius around Stonehenge, is slightly more complex than East Anglia, as there are three distinct concentrations of beakers each with their own local pattern, in addition to the regional pattern. This is Lanting and van der Waals' "classic" zone, with complete development of steps, Clarke's homeland of the W/MR and S₂(W)-S₃(W) types. More common here also is the AOC style, which accounted for only 0.85% of beakers in East Anglia. In Wessex it is 3.24%, exceeded only by Aberdeenshire, with 4.21%. In addition, the majority of true "maritime" beakers in Great Britain come from Wessex.

Beginning on the south coast, there is a concentration of early forms (steps 1 and 2, AOC, AOO, and E) in the areas of the harbours at Bournemouth and Weymouth. These are mixed with undecorated wares, beakers of step 7, and beakers with strong grooved ware affinities. The intermingling of steps 1, 2 and 7 is not uncommon in other parts of the British

²²Mercer, pers. comm.

Isles, and one wonders if perhaps these "devolved" and coarser (step 7) forms do not represent a type of begleitkeramik. Moving inland, to the north and spreading out in a crescent shape in the area between Winchester, Salisbury, and Mere, is a group of early forms (steps 1-3) dominated by the classic W/MR style. This crescent borders on the first major concentration of beakers--those within five miles of Stonehenge.

Here an interesting pattern emerges. To the south of Stonehenge, the early forms predominate. In the area immediately around Stonehenge, and to the north and west, the later forms (steps 4-7) are most common. To the east, as far north as Bulford, the early forms persist in nearly equal mixture with the later--for instance at Durrington Walls²³. North of Bulford the later styles are prominent. This pattern, early forms south and east, later forms north and west, is repeated, although not as strongly, in the immediate vicinity of Avebury, and again at Oxford, where the early beakers concentrate along the Berkshire/Oxford border between Dorchester and Yanton, while the later cluster to the north-west in the area of Cassington and Eynsham.

Again, there is a mixture of early and late forms, as typified by both Cassington and Eynsham. For the remainder of the Wessex region the late forms, particularly Clarke's S₁-S₄ are the most common. The general regional pattern is one of earlier types along the coast, with an "arm" pushing inland towards Stonehenge/Avebury, and later types surrounding them.

²³see Wainwright, G.J. and Longworth, I.H. 1971, Durrington Walls Excavations, 1966-68.

3. Yorkshire: including the counties of Yorkshire, Durham, Cumberland, Westmorland, and Northumbria [§fig. 7, pp. 524].

This area was of particular interest, as it contains Professor Piggott's "isotaph," or boundary line between north and south, based on burial type. Piggott noted that burial in barrows was more common to the south of this line, whereas cist burial was more common to the north²⁴. This isotaph seems also to hold for beaker distribution patterns--a broad gap, running between the Tyne and Tees on the east, Morecambe Bay and the Mersey on the west, contains virtually no beaker material (not altogether surprising, as much of this area is above the 800 ft. contour). The proportions of developed northern to southern beakers changes radically across this line: one northern to two southern in the south, one southern to five northern in the north. The actual stylistic variations are less dramatic in appearance--more in keeping with a clinal than a disrupted shift.

The greatest concentrations of beakers are on the Yorkshire Wolds and in north-east Northumbria, between Alnwick and Berwick-upon-Tweed. There is a scatter of primarily later beakers following the Humber inland, most similar to those in northern Lincolnshire. There are also a few isolated AOC beakers in the Pennines, above the 800 ft. contour, emphasizing again that the AOC style has a somewhat different distribution, and perhaps a different role.

The only distinct group of early types (steps 1-3) is to be found on the North Yorkshire Moors. Represented by sites such as Antofts Windypits and Broxa, this group is made up of AOC, E, and W/MR. There is a small cluster of N/NR

²⁴Piggott, S. 1954 Neolithic Cultures of the British Isles.

beakers on the Cumberland/Westmorland border, and into southern Northumberland (Tynemouth). They are mixed with N₂ and N₃ beakers, and belong in the main to steps 4 and 5. Lying as they do, just over the gap, they perhaps represent a transition between the "northern" and "southern" types.

The later beakers are heavily represented in the Wolds, intermingled with a small number of early types. Of the later beakers, steps 4-7, step 4, with its characteristic grooved neck, is the most common. This is true also in northern Northumbria, where late forms predominate. Here, in beakers of steps 5-7, one can see the influence of the "northern short-necked tradition," most common in Scotland, with which they are contiguous.

4. Aberdeenshire: including the counties of Moray, Nairn, Banff, Aberdeen, Kincardine, Angus, Perth (eastern), Inverness (eastern), Kinross, Clackmannan, and Fife,

and

5. South-east Scotland: including the counties of Stirling, East-, Mid-, and West Lothian, Dumbarton, Lanark, Peebles, Berwick, Selkirk, and Roxburgh [fig. 8, pp. 525].

Southern and eastern Scotland displays a pattern very similar to that in East Anglia, with the early types being primarily coastal, and the later inland. Here the northern styles predominate, Clarke's N₂-N₄. Step 4 beakers, generally a late style in the south, are more often an early type in the north.

The earliest beakers (steps 1 and 2) are found in small clusters; in West Lothian, in north Fife-east Perth, between St. Andrews, Perth and Dundee, and in the Muir of Ord. Here AOC is the most common style. Relatively early types (steps 2, 3, and 4) are found along the coast between Elgin and

Cruden Bay, and again south of Aberdeen to Montrose. There is also a small group between North Berwick and Dunbar.

Beyond this, there is a line of late types (steps 5-7) following the coastline, between the early types and the 800 ft. contour, and along the major rivers and lochs. The largest concentrations are in Aberdeen, on the lines of the Don and Dee rivers, and in East Lothian, between North Berwick and Edinburgh.

There is an increase in the degree of "shortness" and "squatness" of beaker profile from south to north; compare for instance the beakers from Jedburgh, Eckford, and Kelso, with those from Broomend, Pittodrie, and the Mains of Leslie. Drawing a line at Montrose, the ratio of step 5 to step 6 beakers is 4:5 to the south, and 1:2 to the north. There is some intermixing of early and late type, at Broomend for instance (AOC, N₂), but it is less common than in the south, and more early assemblages are wholly or almost wholly AOC.

The most striking feature of the distribution of beaker steps in the regions discussed above is the tendency for the "earlier" (steps 1-3, 1-4 in Scotland) types to remain separate from the later types (steps 4-7). The earlier types appear to have a distinctly coastal distribution in all areas, while the later types are more centrally located and form a "halo" around the "earlier" areas [§see fig. 9, pp. 526, for an overall view]. The early beaker types form a relatively narrow band on the southeast coast of England, between Bournemouth and the Wash, with "fingers" stretching inwards around Stonehenge/Avebury, and along the Thames Valley (following river valleys). There is a grouping in north Yorkshire, on the North York moors and around Whitby, in East Lothian and a narrow band between the north coast of

Fife and Banff, and a group around Muir of Ord. There is also a scatter of smaller "early" clusters inland, in Rutland beyond the Fen Edge, and in West Lothian. Beyond these, in a wide band roughly skirting the 800 ft. contour, are the "later" forms, on a line between Somerset and the Tees, and again from the Tyne to the east coast of Sutherland. In western Britain, there are groups in northwest and southwest Wales, central Cumbria, and interestingly, the tip of Cornwall, and the region of Caithness directly across from the Orkneys (where there are no beakers).

There are several gaps in the above distributions, which are also informative. A wide strip of central Britain is blank, as is the band along Piggott's "isotaph."²⁵ Some of this may be ascribed to environmental or geographical considerations, both prehistoric and modern (for instance above the 800 ft. contour, particularly in moorlands which may not have been considered as suitable during this period). Certainly some of the gaps in distribution are the result of differing intensities of fieldwork or the lack thereof (north-west England and Wales generally being examples of the latter), while others are the result of loss through destruction by industrialization (for instance Birmingham, Leeds, Liverpool and Manchester) or modern farming methods. However, these explanations are not sufficient for all areas, for example, for the Tees valley. On a regional perspective, the gaps in distribution for Wales are unlikely to be significant, owing to the low sample size. There is however, an interesting gap in the early type distribution, in Surrey and southeast Kent, which cannot be explained merely by lack of vessels recovered.

²⁵Piggott, S. 1954 *"Neolithic Cultures"*.

Taking the above-noted pattern in conjunction with the evidence presented in table 3 [§pp. 63], concerning the shift in emphasis of certain steps from 1-7, south to north, it is possible to build up a sequence of "early" areas and regions vs. "later" areas and regions [§fig. 10, pp. 527]. These "earlier" and "later" regions are not mutually exclusive, however, and "later" beakers occur in "early" areas and vice-versa, although the percentage of these occurrences is small (less than 20% in any area defined). Although these beaker steps (typological styles) have been referred to as "early" and "later," the fact that "early" and "later" are sometimes found together, or that different steps frequently occur together (for instance steps 4-6) suggests that a number of the steps, if not all, are contemporary. In order to consider the implications of the pattern noted above, it is first necessary to establish a chronological base.

1.4. Radiocarbon Chronology

Watkins [1987] states that,

...the great virtue of radiocarbon dating is that the dates are obtained by a process which is entirely independent of the archaeological reasoning which they may be required to test or support... [Watkins, 1987: 440]

In this sense, radiocarbon dates are a check on the evidence of typology and stratigraphy. They are, for the archaeologist, a means for answering the questions "when?" and "how long?" Recently, however, much criticism has been levelled at simplistic, and often uncritical use of radiocarbon dating [see Ottoway, 1986, 1987]. As yet there are no standards of procedure for obtaining radiocarbon dates or evaluating them, although standardization between

laboratories producing dates is becoming more common. This has led to much confusion, and has created a situation where many authors are reduced to presenting the "raw" dates only, perhaps with a comment as to whether they appear to fit the established chronologies.

Any inquiry intent on establishing the chronology of a phase, or series of phases, in this case typological, is riddled with potential pitfalls. Watkins has outlined five of the most common:

1. Material is often collected a considerable time before it is actually submitted for dating; for instance, Giant's Hills Long Barrow, where the charcoal was collected during the 1935 excavations, but not submitted for dating until 1961.
2. Groups of dates used to define "phases" or types are generally the result of dates which have been processed by several different laboratories, or at different times by the same laboratory. That there are systematic inter-laboratory errors has been documented [see Waterbolk, 1987], but the extent of intra-laboratory errors is only now becoming apparent, for instance, the recent announcement by the British Museum [Tite, 1987].
3. The selection of material for dating has been made by many different people, often with widely varying criteria. This has created a situation where date comparisons are often made between samples drawn from different substances (charcoal, wood, bone, shell), from different contexts, from different types of sites.
4. By the nature of the availability of material for dating, it is difficult to ascertain whether any set of dates may be biased, with part of the chronological range over-represented, under-represented or unrepresented.
5. The archaeological reliability of each date is something which should, but often cannot, be ascertained. A classic case is the beaker date from the Earls Farm Down round barrow. While it is fairly certain the this date relates to the primary burial, whether it relates to the beaker sherds is suspect. Included in this category should dates be drawn from large wood timbers (surface or heartwood), and contexts where "archaeological" contamination may have occurred, ie. shell middens.

Given these considerations, it seems almost foolhardy to attempt any kind of analysis of radiocarbon dates, except perhaps for those gathered under the most rigorous of conditions. Even this may not suffice, as a recent study by Cunliffe and Orton, on the dates from the Iron Age hillfort at Danebury, showed. Of sixty-five carefully selected contexts, dated as one batch by one laboratory, eleven were still rejected [Cunliffe, 1984: 190-3]. Add to this the knowledge that each radiocarbon date includes a statistical error of calculation, and one is left with the impression that no date can be taken as reliable.

There are two approaches to this problem: one can either say that all dates are suspect, and any analysis of them would be a nonsense, or one can recognize the potential problems, and proceed from that basis, remembering that the results of any analysis must be considered as a possible solution only, to be verified by other types of archaeological data. It is the latter solution which this author has adopted.

In statistical analysis of a body of radiocarbon dates, derived (as in this instance) from a long-lived chronological period, and relating to typological change, it must first be recognized that there is no reason to suppose that the distribution of these dates through time will approximate a "normal distribution" (i.e. a "bell-shaped curve"). Most standard statistical tests are based on this concept, which would be applicable to a situation, such as the eruption of a volcano, where one wanted to date the eruption. Dates taken on such a single event would tend to cluster around the actual date, becoming fewer as one moved further away in time. A cultural phase is not a single event, however; it has no "central point", but rather a

"period of activity" over which the dates are spread, often very unevenly, for the reasons outlined above.

The question, however, must be raised as to whether the differences in distribution (discussed above) actually reflect "early" and "late" types, or merely different but contemporary traditions which vary regionally. Lanting and van der Waals maintained that their step scheme was a strictly chronological one, to which they assigned the following dates:

Step	Years b.c.	Duration
1	2100-1900	200
2	1950-1850	100
3	1900-1800	100
4	1850-1750	100
5	1800-1650	150
6	1700-1550	150
7	1600-1500	100

This interpretation pictures an orderly succession of phases, each roughly of equal length, and each overlapping the preceding and succeeding periods by approximately 50 radiocarbon years (roughly the period of the smallest standard deviation to one degree in radiocarbon years, at the time the paper was written).

In proposing this chronology, Lanting and van der Waals stressed that it was conjectural, however it has tended to be taken since as fixed and firm. Although the number of radiocarbon dates available for analysis has grown dramatically since the early 1970's, very few authors have sought to deal with the difficulties posed by the body of radiocarbon data.

Watkins has discussed four possible approaches to data of this kind, beginning with a simple examination of the oldest

and youngest dates of each group of dates, as providing a terminus post quem and terminus ante quem for the period(s) in question. Considering first the radiocarbon evidence for the "beaker period" [§see appendix 2, pp. 432, for raw dates, and fig. 13, pp. 530], the dates are as follows:

Period:	Earliest Date:	Latest Date:	Range:
Steps 1-2	2460 ± 150	1280 ± 90	1420-940
Step 3	2490 ± 150	1410 ± 70	1300-860
Step 4	2469 ± 130	1555 ± 85	1129-699
Step 5	1850 ± 150	1530 ± 70	540-100
Step 6	1850 ± 150	1300 ± 35	735-365
Step 7	2170 ± 140	725 ± 100	1685-1205
Steps 1-7	2610 - 2310	825 - 625	1985-1485

The ranges in each case are calculated as the minimum and maximum for each step, based on one standard deviation around the central date (ie. $2490 + 150 = 2640$, $1410 - 70 = 1340$; $2640 - 1340 = 1300$ years b.c.) On this basis, the "beaker period" can be taken as lasting between c. 2000 - 1500 uncalibrated radiocarbon years, or between the dates of 2610 - 625 b.c. maximum and 2310 - 825 b.c. minimum, at one standard deviation. If we take the more statistically sound approach of considering the dates at two sigma (95%), then beakers can be said to have been in existence as early as 2790 b.c., and to have continued until 525 b.c., maximum (2190 - 925 b.c. minimum) or from the Middle Neolithic until the Early Iron Age (a considerable spread of time for any pottery form).

Looking at the distribution of dates, however, it is clear that the spread of dates is not even. In particular, there are dates at the beginning and end of the sequence

which are detached from the rest (separated by more than two standard deviations). Of these, the two dates from Pinhole Cave (BM 43 2170 \pm 140, and BM 438 1970 \pm 120), which come from bulked charcoal samples, can potentially be discarded. The security of the Giant's Hills dates (BM 191 and 192) is open to question²⁶. The date from Arminghall (BM 129 2490 \pm 150) is for coarse beaker associated with Peterborough ware. At the end of the sequence, the date from the ring ditch (site 17) at Tallington (UB 453 725 \pm 100) is for beaker sherds and sheet bronze earrings from human bone of what appeared to be the latest of "...the disturbed remains of successive inhumations..."[Simpson, 1976: 217]. The sherds were associated with one or two of these burials.

While some of these dates can be disregarded (*i.e.* Pinhole Cave) the context of others is not sufficiently uncertain to exclude them. However, neither do they seem to belong to the main "beaker period," and perhaps could best be described as "outliers" [§see definition of Boxplots, pp. 6, and fig. 11, pp. 528]. If the ranges are recalculated, without "outliers", they are:

Step(s):	Highest Date:	Lowest Date:	Range:
1-2	2100 \pm 40	1280 \pm 90	950-690
3	2100 \pm 40	1410 \pm 70	800-580
4	1970 \pm 55	1555 \pm 85	555-275
5	1850 \pm 150	1530 \pm 70	540-100
6	1850 \pm 150	1300 \pm 35	735-365
7	1680 \pm 90	1000 \pm 150	920-440
1-7	2140 - 2060	1150 - 850	1290-910

²⁶see ch. 8, pp. 383.

This approach reduces the total range to between c. 1300 - 900 uncalibrated radiocarbon years, or, taking the 95% certainty factor, to a beginning c. 2200 b.c., and an end c. 700 b.c., from the Late Neolithic to the end of the Bronze Age. It also has the interesting result of reducing the ranges for steps at the beginning and end of the typological scheme, while leaving the middle steps unaffected. In both schemes, the total ranges for each step are shorter for the middle steps, than for those at the ends.

Taking this analysis to its logical extent, we have a date for the beginning of the "beaker period" between, c. 2790 - 2190 b.c., and an end c. 925 - 525 b.c. This gives ranges of either c. 2265 or c. 1265 years b.c. (maximum and minimum), a difference of 1000 years b.c. For the ranges with "outliers" excluded, the "beaker period" begins c. 2180 - 2020 b.c., and ends 1300 - 700 b.c., ranges of 1480 and 720 years b.c., a difference of 760 years b.c.

While this gives a general indication for the date and length of the "beaker period," the level of inaccuracy (\pm 750 uncalibrated radiocarbon years) is fairly high. In addition, this method gives no clues as to the "internal structure" of the dates, in relation to the typological steps. To assess this, Watkins suggests the use of interquartile ranges [see Ottoway 1973: 12]. This technique can be used to divide beaker typological steps into three chronological groups, "early" (steps 1-3), "middle" (steps 4-6) and "late" (step 7).

Interquartiles are constructed as follows:

...the sample values are arranged in order of magnitude and numbered serially, the smallest value receiving the number 1. The order numbers are ranks of the sample values. To find the first or upper quartile, the second or median and the third or lower quartile, it is only necessary to

apply the following formulae, where n = total number of samples:

upper quartile = $0.25 \times n + 0.5$
 median = $0.50 \times n + 0.5$
 lower quartile = $0.75 \times n + 0.5$

If the result coincides with a whole number, then the quartile coincides with the sample value. If the result is a fraction, then the quartile lies between the sample values with the ranks adjacent to the result... [*ibid.*]

(this is essentially the definition of a boxplot, and for the purposes of comparison of radiocarbon dates, the terms hinges and interquartiles are interchangeable).

Interquartiles for beaker radiocarbon dates are given below and fig. 14 [pp. 531] displays the results.

Step	Inner Upper	Interquartile Lower	Range yrs. b.c.
1-2	2037	1855	182
3	2035	1838	197
4	1935	1669	266
5	1848	1641	206
6	1836	1601	235
7	1570	1324	246

Using Ottoway's criteria for comparing between groups of interquartiles, "...the probability is 97% that the samples come from two different 'populations' if the interquartile ranges just fail to overlap..." [*op. cit.*, pp. 7], it can be seen that beaker interquartiles fall into three logical groupings: steps 1-3, 4-6, and 7, which are largely overlapping in their interquartile ranges between themselves, and largely non-overlapping between each other.

In regard to the two methods (Maximum Range Estimation and Interquartiles) described above, Watkins has pointed out that,

...the first method assumes that the samples from Halaf contexts give dates which refer to the Halaf culture, even the extreme dates; the second method

is an ultra-cautious technique of defining the core of a set of dates at the expense of sacrificing 50% of the total sample... [Watkins, 1987: 446]

Comparing the ranges generated by methods one and two, clearly illustrates the difference between them:

Step(s):	High-Low Range:	Interquartile:	Difference:
1-2	2460 - 1280	1940 - 1640	880 yrs. b.c.
3	2490 - 1410	2025 - 1690	750
4	2469 - 1555	1850 - 1655	720
5	1850 - 1530	1820 - 1595	95
6	1850 - 1300	1755 - 1535	335
7	2170 - 725	1570 - 1325	1200

The high-low range is based on the highest and lowest date for each group, without standard deviation. The interquartile range is based on the dates for the upper and lower inner interquartiles. The difference between the two is thus an "average" difference.

These two sets of date ranges can be thought of, roughly, as the "minimum" and "maximum" ranges for each step in the beaker typology. There is another method for calculating these two sets of ranges, using a non-parametric statistical test called a box-and-whisker plot (or boxplot), which finds the "hinges" and "fences". Hinges are essentially quartiles, and the H(inge) spread equals the upper hinge (upper quartile) - the lower hinge (lower quartile), or the inner quartile range. In a boxplot, dashed "whiskers" run from the hinges to the adjacent values; the "fences" (similar to the outer quartiles, except that they do not include outliers) on each side. The "inner fences" are defined as being $\pm 1.5 * \text{hinge spread}$, and the "outer

fences" as $\pm 3 \times$ hinge spread. Dates between the inner and outer fences are possible "outliers" (outside the normal range for that group), while dates outside the outer hinges are probable outliers [§see fig. 11, pp. 528].

The hinges, calculated for steps 1-7 are [§see also fig. 15, pp. 532]:

Step(s):	UIF	UH	MH	LH	LIF
1-2	2375	1975	1850	1700	1400
3	2490	2020	1900	1700	1410
4	1990	1860	1780	1640	1540
5	1850	1825	1715	1590	1530
6	1850	1760	1675	1510	1300
7	1680	1560	1485	1290	960

(where UIF = upper inner fence; UH = upper hinge; MH = median; LH = lower hinge; LIF = lower inner fence.)

The inner hinges can be seen to correspond closely with the quartile ranges, while the outer hinges correspond most closely to our prediction of ranges, discounting those dates which appeared to lie outside the main body of dates (the "outliers").

The "maximum" range for a group of dates can also be defined by POOR (proportion out of range) devised by Orton for the Danebury report,

...to ascertain the proportion of observed dates which could be expected to lie outside the true range of a phase...depends only on the ratio of the range of the phase (ie. its length in years) to the standard deviation of the dates...[Orton, 1984: 194].

POOR can be used to estimate the beginning and ending dates of a phase, by choosing dates in such a way that half the proportion shown lies outside each end of the range [see Cunliffe, 198 : 194, table 22] If POOR ranges and estimates are calculated, it can be seen that they compare very closely with the ranges generated by the outer hinges.

Step(s):	Boxplot Range:	Yrs.	POOR Range:	Yrs.
1-2	2380 - 1400	980	2370 - 1410	960
3	2490 - 1410	1080	2490 - 1410	1080
4	1990 - 1550	440	1900 - 1580	320
5	1850 - 1530	320	1850 - 1550	300
6	1850 - 1300	550	1850 - 1450	500
7	1680 - 960	720	1680 - 1000	680

POOR estimates work on the assumption that dates within a group are in a normal distribution, and we have already shown that this may not be the case for our phases. POOR estimates are useful, however, by providing an independent check on the boxplot analysis.

All analysis techniques so far considered have been based on the assumption that the groups of dates represented by steps 1 to 7 are the result of chronologically distinct vessel types. There is, however, a considerable amount of overlap between the ranges of the different steps. We might wish, therefore, to ask two questions of our data set:

1. Could our entire body of dates (data set) have been derived from a single population? (i.e. are all our typological steps largely contemporary?)
2. If our groups of dates are not derived from a single population (contemporary), what chronological distinctions can be made between our typological steps?

To determine the answer to these questions, it is necessary to use another non-parametric statistical test; the Kruskal-Wallis test. This is an extension of the Mann-Whitney test, which is designed to determine if,

...two small, independent, random samples of measurements...come from the same distribution or from two different distributions.... [Mosteller and Rourke, 1973: 54.]

The Kruskal-Wallis test deals with three or more groups of data ("k" number), which are ranked and compared. This comparison is the Kruskal-Wallis statistic, "H", and the size of H determines whether or not several populations can be said to have equal distributions. The "cut-off" point, in order to justify the "non-equal" hypothesis is $H > \text{or } = 1/20$ (5%). This can be determined by locating the H value on the Chi-square value table, taking degrees of freedom to be $n-1$, where n = the number of groups in the test.

The Kruskal-Wallis test also calculates the Z value for each group, in relation to the total sample. The Z value determines where each group would be located on a normal distribution curve, in relation to the other groups in the test. This gives the "spread" of the groups (their distance apart). it is easiest to demonstrate diagrammatically [see fig. 12, pp. 529]. In calculation of the Z value, ± 1.96 is the crucial value; groups beyond this are considered to be significantly different from those within the boundary. It should be noted that because the Kruskal-Wallis test is based on ranks, rather than actual dates, there is no relationship between the distribution curve of the individual dates, and the distribution curve of the Z values.

The Kruskal-Wallis analysis of steps 1 to 7 is given below:

Step:	No Dates:	Median:	Ave. Rank:	Z value:
1-2	32	1860	72.1	+ 2.69
3	23	1900	74.4	+ 2.53
4	14	1775	60.7	+ 0.26
5	19	1716	50.8	- 1.09
6	14	1668	41.8	- 1.98
7	14	1475	26.3	- 3.82
Overall	116		58.5	

$H = 27.71$; for 5 degrees freedom, $H > 0.001$; or 99.9% probability that the samples in the test are not drawn from the same population.

A number of conclusions can be drawn from this analysis. First, the H value is high enough to justify our "not equal" hypothesis. We can be reasonably certain therefore that our six groups, steps 1-2 to 7 are chronologically different. Second, by looking at the column "Ave. Rank", we can determine in what order our groups should be placed. The rank of each group is determined by ordering the dates from oldest to youngest, and assigning each a consecutive number, then adding up the assigned numbers for each group. The group with the highest rank will be first in a series, the next highest second, and so on. The average rank will also give a rough idea of the "distance" between groups.

From our Ave. Rank column, we can see that step 3 should precede steps 1-2, followed by steps 4, 5, 6, and 7. We can also see that steps 1-3 are fairly close in rank, at 74.4 and 72.1, and separated from the next "group," steps 4-6, by

12 units. Steps 4-6 form a loose grouping, within 10 units of each other, but not closer. They are separated by a substantial gap from step 7, at 26.3.

The information in the average rank column is mirrored in the Z value column, with steps 1-2 and 3 closely grouped at +2.69 and +2.53, above the +1.96 significance level. At the other end, step 7 is separated from steps 4-6, at -3.82, well below the -1.96 mark.

Each Kruskal-Wallis analysis is relative for the group of data input, and different groupings of steps 1-7 will produce varying results, although in all cases, steps 1-3, and step 7 remain distinct. Steps 4-6 are more difficult to interpret; they do not form a particularly close group, but they are not significantly different statistically, and therefore cannot be considered to be chronologically distinct. An analysis of steps 4-6, as detailed below, suggests that they should perhaps be considered as a broadly-related grouping.

Step:	No Dates:	Median:	Ave. Rank:	Z value:
4	14	1775	28.5	+ 1.45
5	19	1716	24.2	+ 0.07
6	14	1668	19.3	- 1.52
Overall	47		24.0	

$H = 3.125$, for 2 degrees freedom, $H > 0.100$; 90% probability of the null hypothesis being correct.

To return to our two questions at the beginning of this section, we can say, on the basis of the Kruskal-Wallis statistic, that our typological steps 1-7 are

chronologically distinct, and could not have been drawn from one population. On the basis of information drawn from the average rank and Z values, we can again suggest that chronological distinctions be drawn between "early" (steps 1-3), "middle" (steps 4-6) and "late" (step 7).

If we review Watkins' four proposed methods for analysis of dates, what can we now say about the minimum and maximum ranges for our suggested groups? Minimum and maximum dates for each step have already been considered; we can use these dates to determine minima and maxima for the groups. Boxplot analysis suggests the ranges are:

Group:	Highest:	Lowest:	Range:
Early	2490 \pm 150	1280 \pm 90	2640/2340 - 1370/1190
Middle	2469 \pm 130	1300 \pm 35	2599/2339 - 1335/1265
Late	2170 \pm 140	725 \pm 100	2310/2030 - 825/625

Or, removing "outliers":

Early	2100 \pm 40	1280 \pm 90	2140/2060 - 1370/1190
Middle	1970 \pm 55	1300 \pm 35	2025/1915 - 1335/1265
Late	1680 \pm 90	1000 \pm 150	1770/1590 - 1150/850

Considering only the highest and lowest dates for each group, we would conclude that "early" and "middle" are not significantly different in the period of their duration; a conclusion we know to be inaccurate, on the basis of the Kruskal-Wallis statistic. Even when the "outliers" are discarded, differences between "early" and "middle" are only slight. This is the major problem with considering only the extremes which mask the internal "structure" or distribution of the dates. This structure can be illustrated, in the form of a "dotplot" (which plots the frequency of the central dates over time). Using this technique [see fig. 17, pp. 533], the different periods of "intensity" of dates

can be clearly seen; with the bulk of the dates for the "early" group pre-dating those for the "middle" group.

This difference can again be quantified, with the Kruskal-Wallis statistic. Grouping steps 1-3, steps 4-6 and step 7, results in the following:

Group:	No. Dates:	Median:	Ave. Rank:	Z value:
Early	49	1860	69.2	+ 4.05
Middle	47	1713	50.2	- 1.50
Late	14	1475	25.1	- 3.81
Overall	110		55.5	

$H = 23.08$, for 2 degrees freedom, $H > 0.001$; 99.9% probability

The H value indicates three non-equal groups, and the large difference in the Z values would produce a graph with three overlapping, but largely distinct distributions. Expressing these groups by means of a boxplot, in place of interquartile analysis, the distribution ranges can be calculated as follows [see also fig. 16, pp. 533]:

Group:	LIF	LH	MH	UH	UIF
Early	1275	1700	1860	2000	2460
Middle	1280	1575	1725	1825	1990
Late	975	1320	1475	1560	1695

The LIF and UIF (lower and upper fences = outer quartiles) are in line with the minima and maxima suggested by looking at the highest and lowest dates, trimmed of outliers. The LH and UH (lower and upper hinges = inner quartiles) suggest the minimum range. These dates may be

considered as the floruit of each group; a range by which these particular types were certainly current. It must be remembered, however, that the hinge dates, like the interquartiles, represent the central 50% of dates for that group, and that 50% of dates will lie outside the hinges.

Lanting and van der Waals

Radiocarbon-Inner Hinge

Step	Dates b.c.	Yrs.	Dates b.c.	Yrs.
1	2100-1900	200	1975-1700	275
2	1950-1850	100	1975-1700	275
3	1900-1800	100	2020-1700	320
4	1850-1750	100	1860-1640	220
5	1800-1650	150	1825-1590	235
6	1700-1550	150	1760-1510	250
7	1600-1500	100	1560-1290	270

Another point worth noting is that, contrary to Lanting and van der Waals' initial hypothesis, the average "life span" of each step, expressed by inner hinge dates, is c. 250 years, rather than c. 100-150 years [§see fig. 18, pp. 534]. An examination of the outer hinge dates serves to reinforce this point, that in fact these steps, particularly the early ones, continued for some time alongside the later. This would perhaps account for the small but persistent percentage of burials with "mixed" (early and late type) assemblages.

A final consideration in assessing the radiocarbon evidence for beakers is the effect which calibration may have on the distribution of dates, and on the date ranges. It has been known for some time that the distribution of ^{14}C in the atmosphere varied over time, and that these variations have resulted in "wiggles" in the calibration

curve. Accurate calibration of dates has been an ongoing concern, and the subject of the last Radiocarbon conference, which resulted in the publication of new calibration curves.

Two forms of the calibration curve are currently available "on disk," the Stuiver and Becker curve, published in Radiocarbon²⁷ and the Robinson curve, as discussed in the Hassan and Robinson article for the Antiquity radiocarbon calibration issue [see Hassan and Robinson, 1987]. There are a number of technical differences between these curves, but two major differences appear. First, Robinson includes a multiplier to "...expand the margin of error, allowing for variability greater than the laboratory-quoted uncertainty...." [Hassan and Robinson, 1987: 121]. Second, the Stuiver and Becker calibration curve produces all possible calendrical dates which are derived from where the radiocarbon date intercepts the wiggles on the calibration curve [for a discussion of this process, see Pearson, 1987]. These are not "weighted" in any way, and "...it is impossible to select any one date...as being most probable, all are equally valid..." [Pearson, 1987: 102]. Robinson's technique, however,

...resolves the difficulty by estimating the most likely calendrical age corresponding to the radiocarbon measurement and the uncertainty associated with the calibration... [Hassan and Robinson, 1987: 121]

The result is a single date, the "weighted average" or centroid. For the "end-user" of radiocarbon dates this is an important distinction, especially when the purpose of calibration is to analyse and compare groups of dates.

²⁷Stuiver, M. & Kra, R.S. 1986 Radiocarbon 28, *Proceeding of the 12th International Radiocarbon Conference*.

The dates for steps 1-7 were calibrated using both the Stuiver and Becker program and the Robinson program. However, for reasons outlined above, the Robinson dates were used for the Kruskal-Wallis and boxplot analysis²⁸ [§see fig. 19, pp. 535, for plot of calibrated beaker dates].

The calibrated dates produced results which are virtually identical to the uncalibrated dates in the Kruskal-Wallis analysis. For steps 1-7, taken individually, the differences between the ranks, and the Z values, are slightly greater than with the uncalibrated dates. This trend is reflected in the Kruskal-Wallis analysis of the early, middle and late groups.

Step:	No:	Median:	Ave. Rank:	Z value:
1-2	32	2273	75.7	+ 2.88
3	21	2257	74.6	+ 2.05
4	15	2135	63.5	+ 0.36
5	20	2025	54.1	- 0.91
6	18	1987	46.3	- 1.88
7	14	1739	29.0	- 3.61

H = 24.86, for five degrees freedom, $H > 0.001$; 99.9% probability.

Early	53	2272	75.2	+ 4.13
Middle	53	2010	54.1	- 1.80
Late	14	1739	29.0	- 3.61

H = 22.84, for two degrees freedom $H > 0.001$; 99.9% probability.

²⁸both sets of calibrations are listed in §appendix 3, pp. 437.

The effect of calibration would appear, if anything, to be an exaggeration of the difference between groupings, rather than a mitigation of them. The hinge values for calibrated dates for steps 1-7, and "early, "middle," and "late" types are given below [see also figs. 20-21, pp. 536].

Step:	LIF	LH	MH	UH	UIF	n
1-2	1795	1975	2272	2404	2515	31
3	1676	2010	2257	2486	2515	21
4	1784	1985	2135	2224	2390	15
5	1809	1900	2054	2196	2256	21
6	1694	1823	1996	2108	2244	19
7	978	1556	1740	1867	2254	14

Type:

Early	1782	1992	2265	2465	2515	52
Middle	1799	1880	2010	2194	2257	55
Late	978	1556	1740	1867	2254	14

Summary:

A summary of the re-examination of Clarke and Lanting and van der Waals suggests the following conclusions:

1. While Clarke's criteria are useful for identifying individual vessels, Lanting and van der Waals' scheme is most useful for comparing groups of vessels, both inter-site and inter-regionally.
2. Lanting and van der Waals scheme can be successfully extended to cover the whole of the British Isles. A greater range of variation in shape and decoration for each of their steps is noted.
3. Also noted is the shift in the % of beakers per step from south to north, with step 2 being the most common in Wessex, step 3 in East Anglia, step 4 in Yorkshire, steps 5-6 in the north and west. This could indicate a component of "regional preference" in the distribution of types, implicit in terms such as Northern and Southern series, employed by Clarke. It is suggested, however, that considered together with the chronological

implications of the step sequence (discussed above), that this may also indicate a later "uptake" of beakers in the north and west, moving out from the "earlier" regions of Wessex and East Anglia, through Yorkshire and the Midlands into Scotland and Wales in the "later" phases.

4. Lanting and van der Waals' step scheme is subject to a distinct spatial patterning. This patterning is based on the segregation of "early" (steps 1-3) and "late" (steps 4-7) types. As a general rule, the early types have a coastal distribution, with the later types forming a "halo" around them. This occurs in conjunction with (3), and suggests that although later beakers occur in "early" regions (Wessex, East Anglia) and "early" beakers occur in "later" regions (Aberdeenshire), they do not occur together as a general rule (i.e. "early" and "late" types in these areas are spatially distinct).
5. Using radiocarbon dates, beaker steps can be shown to fall into three statistically significant groups: early (steps 1-3), middle (steps 4-6) and late (step 7). These groups are valid whether calibrated or uncalibrated dates are used. Taken in conjunction with (4), this suggests that typologically "early" beakers are also chronologically early, and the distinctions in distribution between "early" and "later" beaker areas are chronological as well as spatial, and represent uptake of beaker types over time [§fig. 10, pp. 528], with
 - a) uptake of "early" types (steps 1-3, 1-4 in Scotland), in "early" areas, particularly in the "early" regions of Wessex and East Anglia, although also in coastal locations in Yorkshire, Northumberland, and around Scotland, being followed by
 - b) uptake of "later" types (steps 4-7), still with some component of "early" beaker, in "later" areas, particularly in "later" regions; Yorkshire, Northumberland, Scotland and Wales, where these types have their greatest development.

Chapter 2: Collared Urns and Peterborough Ware

2.1 Collared Urns

In contrast to most Neolithic and Bronze Age pottery traditions, Collared Urns have been dealt with recently and exhaustively by Dr. Ian Longworth (1984). Longworth's volume represents the synthesis of twenty five years of analysis of the Collared Urn tradition.²⁹ It includes, in addition to discussions of typology, chronology and associations, a catalogue of 2255 urns, the first to be produced since Abercromby.

Longworth begins by defining the term 'pottery tradition' and outlining its parameters.

...pottery remains the most sensitive cultural indicator in the non-organic field of cultural material. The plasticity inherent in the clay, coupled with the fertility of man's imagination allow for the production of an almost infinite number of variations in pottery...man as a member of a social group...subject his personal inclinations to group taste...it is this group taste, which, in ceramic terms, defines a pottery tradition....[Longworth, 1984: 3]

A pottery tradition, in his terms then, "...is a complex of separate usages which recurrently occur together..." [Longworth, 1984: 3]. Within this tradition, each individual vessel should be understood not as a finished unit, but as "...an amalgamation of separate, distinct but complementary components, which taken together make up the whole...." [Longworth, 1984: 3]. These components fall

²⁹beginning with his paper, "The origins and development of the Primary Series in the Collared Urn Tradition in England and Wales," *Proc. Prehist. Soc.*, 1961.

under three major headings: fabric, form, and surface treatment.

Longworth divided fabric into categories of material and manufacture. He noted that most Collared Urns are coil built, with some self-slip present, and poorly fired under low temperature conditions.

...simple two-tone fabric...suggesting that the vessels were...fired in an inverted position with relatively free access to the external surface but with the air largely excluded from the interior. The often blotchy appearance of the external surface...indicates that firing conditions were not fully controlled...."[Longworth, 1984: 4]

This would tend to support Longworth's contention that the manufacture of Collared Urns was a locally-based "domestic" (and relatively low-skilled] activity. The materials appeared to him to be local clays and grits, with grog as the major source of temper³⁰. Interestingly, he notes that "...the most significant exclusion from the range of tempering materials readily available...at least in southern and eastern Britain, is crushed and burnt flint...." [Longworth, 1984: 4] This is important, in the light of his hypothesis deriving Collared Urns from Peterborough Ware, as crushed flint forms one of the major tempering agents for the Peterborough series [Smith, 1956: 81].

Form could be further subdivided into six areas, representing major structural features:

³⁰ in contrast to beakers, where flint and stone are the major sources of temper [see Clarke, D.L. 1970, appendix 2.7, pp. 434-5].

1. Rims: simple, expanded, multi-internally beveled.
2. Internal Mouldings.
3. Collars: convex, straight, concave, s-shaped, and simple.
4. Neck and Shoulder: concave, vertical; concave, angled; concave, asymmetrical; s-shaped; straight, vertical; straight, angled; converging.
5. Body: trunco-conic, ogee, bipartite (globular, recurving; convex; straight-sided, truncated cone).
6. Base: simple angled, concave, protruding foot (flat; omphalos).

Longworth noted that of all the structural elements "...the neck shows the greatest range of consistent variation and for this reason ranks as a highly sensitive factor for the definition of forms with the tradition...." [Longworth, 1984: 6].

Surface treatment could likewise be divided into several areas: techniques, motifs, and areas of decoration.

Techniques:

1. Corded; whip, twisted, plaited, pseudo-plaited.
2. Non-corded; linear incision (grooved, comb), non-linear incision (stab and drag, impressions)

Motifs were represented by types A to O, [op. cit. pp. 9]. The collar, neck, shoulder, body, rim, and internal rim were all areas to which decoration was commonly applied. With the exception of small vessels, decoration was generally confined to the upper half of the pot. Totally undecorated vessels appeared to be a regular component of the tradition.

These three components; form, fabric, and surface treatment, Longworth drew together to define eight forms basic to Collared Urns. These were divided into two major categories: tripartite and bipartite.

A. Tripartite:

I. Collar generally angled, occasionally vertical, neck concave, shoulder well marked [fig. 7a], body trunco-conic to ogee. Three subtypes;

Ia. neck set vertical [fig. 6a]

Ib. neck concavity asymetrically skewed [fig. 6b]

Ic. diameter of shoulders exceeds neck [fig. 6c]

II. Collar angled, approximately equal to depth of neck, neck approximately straight [fig. 6f], shoulder sharply articulated [fig. 7a], body trunco-conic to ogee. One subtype;

IIa. stepped shoulder [fig. 7d]

III. Collar angled, approximately equal to depth of neck, neck vertical [fig. 6e], body usually trunco-conic. Two subtypes;

IIIa. sharply articulated shoulders [fig. 7a]

IIIb. shoulder not sharply articulated [fig. 7b]

IV. Collar angled, approximately equal to the depth of the neck, neck approximately vertical, s-shaped [fig. 6d], usually meeting shoulder in moulding or pinched-out cordon [fig. 7c], body usually ogee.

V. Collar angled, approximately equal to the depth of the neck, neck convergent [fig. 6g], shoulder emphasised by a pinched-out cordon [fig. 7c], body varies from trunco-conic to ogee. Two subtypes;

Va. neck straight or slightly convex

Vb. neck s-shaped.

B. Bipartite:

BI. Collar usually angled, body globular, recurving beneath collar, base of collar is maximum diameter of body.

BII. Collar usually angled, body convex with no recurve, base of collar maximum diameter of body.

BIII. Collar angled, body with convergent straight sides, approximating to a truncated cone.

Longworth divided the Collared Urn tradition into a Primary and Secondary series, the description of which he

covered in chapters two and three. The main formative influences "...lie in the later stages of the Peterborough tradition..." from which came "...the basic components of form and the bulk of the decorative techniques and motif range...these traits...as features having only a limited life in the Collared Urn tradition...." [Longworth, 1985: 19, 21].

Longworth was able to select seven traits which he felt showed continuity between Peterborough Ware and Collared Urns. Urns possessing two or more of these traits were classed as Primary, the remainder as Secondary.

(1) Formal Traits:

1. presence of an internal moulding [fig. 4]
2. presence of simple, pointed, rounded or flattened rim, or rim with simple, unexpanded rim bevel [fig. 3: 1-3]
3. collar form with straight or convex external surface [fig. 5a, b]

(2) Decorative Traits:

1. internal decoration other than on the rim or rim bevel
2. herringbone or repetitive vertical/diagonal short-line motifs
3. decoration extending below the shoulder/greatest body diameter onto the body
4. whipped cord

The Primary series is dominated by concave-necked vessels of form I and its various sub-forms, which make up 63% of all vessel forms in this series. Practically all vessels are broader than they are tall. Motifs can be broken down by area; J, A, E, and O predominate on the internal moulding, J, A, and E on the rim, J, A, C, H, and O on the collar, and J on the neck. The vast majority of vessels carry no shoulder decoration; those where decoration is present have either herringbone or single impressions.

While Longworth felt that the Peterborough Ware complex provided the major source of inspiration, he recognized that several other "traditions" influenced or were influenced by Primary Collared Urns. Perhaps most important among these were beakers, where the process was "...essentially one of selection and absorption, but also simplification...many of the patterns and schemes adopted were current only on late beaker pottery...." [Longworth, 1984: 21, 22] Primary contributions by the beaker tradition were the use of zoned and panelled decoration, of reservation, bordering elements, and more formalized motifs.

Longworth felt that the Grooved Ware tradition had little or no contribution to Primary Collared Urns, with the possible exception of one or two motifs. Interestingly, he considered that it was rather the Fengate style of Peterborough Ware which owed much to this source.

In considering possible Food Vessel-Primary Collared Urn connections, Longworth noted that a certain amount of interchange could be expected between groups sharing a common origin and existing contemporaneously. He selected for mention those traits which he felt to be alien to the Primary series, and of likely Food Vessel derivation, enumerating them in appendix I.

1. Yorkshire Vase: shoulder grooves, stopped grooves, perforated lugs and stops, and a narrow zone of ornament at the base of the body.
2. Southern English/Ridged Vase: multiple shoulder/upper body grooves, extremely narrow collars.
3. Irish-Scottish Vase/Drumnakilly: linear, incised body lattice.

...the relatively small percentage of vessels in the Primary series possessing derived Food Vessel traits is some indication of how great a

divergence had already occurred...underlines what appears to be a conscious sense of separate identity.... [Longworth, 1984: 24]

The Secondary Series vessels are defined as those which "...bear no close resemblance to vessels of the Late Neolithic, carrying an array of typologically more developed features reflecting internal growth within the tradition...." [Longworth, 1984: 29] A number of traits distinguish them from the Primary Series:

- a. increasing frequency of heavier rimmed forms
- b. greater variety of concave and s-shaped collars
- c. disappearance of internal decoration and mouldings
- d. preference for confinement of decoration to the collar and rim (particularly on the south-east style)
- e. differentiation of motifs between collar and neck
- f. Primary Series trait of reduplication of pattern confined to those vessels decorated with single impressions (motif O)
- g. decline of whipped cord, and herringbone (motif J)
- h. favouring of complex geometrical patterns--filled triangles (motif H), lattice (motif L), and hurdle (motif C)
- i. increased use of forms III-V, and BI-III

Within the Secondary Series two major "geographical styles" emerged, one centred in north and west England, the other in south and east England. These two styles could be distinguished both by formal and decorative techniques. The North-West style is characterized by forms III and V, by linear incision, the use of lattice (L) and lozenge (K1) patterns applied to the neck, and by a row of jabs (O) on the shoulder. The South-East style is characterised by the forms BII and BIII, by the use of point-tooth comb, of horizontal (A1), vertical (B1), or diagonal (E1) lines on the collar as a unitary motif, and the use of horseshoes (M1-2) on the shoulder. The choice of names reflects the major distributions of these two groups, according to Longworth's analysis: the North-West style is predominant

in northwest England, Wales, and Scotland, the South-East style in southeast England. Longworth feels that the northwest style is coherent enough that two "zones" of distribution can be recognized: a "nucleus" in north-west England, "...in terms of both numerical strength and strength of tradition as shown by the frequency with which potters of the style combined their favourite features on the same pot..." [Longworth, 1984: 32], and a second zone, embracing much of central and north-eastern Scotland and coastal Wales, where the tradition is numerically weaker and more dilute, with typical features appearing less frequently in combination. The South-East style has no distinct "nucleus;" here potters are

...simply selecting a number of traits from the traditional range but showing no marked preference for combining them on specific vessels....
[Longworth, 1984: 37].

The Secondary Series represented a chronological as well as typological development from the Primary Series in Longworth's opinion. He based this on what he could see as a geographical expansion of sites of the Secondary Series beyond that of the Primary series, increased "diversity of usage" (of motif and technique) development of typology away from the Peterborough-parent model, and on the few artefact associations available, notably those connected with "Wessex" grave types. On this evidence he feels able to state that "...the Primary series was already in existence by the Bush Barrow phase...and survived into the succeeding Aldbourne-Edmondsham phase...vessels of the Secondary Series were already being made at least by the transition between these phases...." [Longworth, 1984: 79]

The artefact and funerary associations add little else to the picture, as Longworth sees it, although he makes some

generalizations. Cremation is the dominant rite for the Collared Urn tradition as a whole, with only twenty-five inhumations and four mixed burials known. The cremated bone is often carefully selected, and occasionally, as shown by traces of cloth found within vessels, placed in a bag before being deposited. The bones are located either within an upright urn, or beneath an inverted urn. Occasionally there is a stone slab or cist to protect the interment.

Flat graves, round barrows and round cairns are the preferred burial locations, either purpose-built or reused. Cremation cemeteries are more common in the northwest than the southeast. Of the accompanying artefacts, an "accessory cup" or other vessel is the most common deposit. "...the grave furniture comprises objects which look distinctly personal in character...." [Longworth, 1984: 48]. These are broken down by Longworth into two categories: personal ornaments (beads, earrings, buttons, cloak-fasteners and bone pins), and personal tools (small flint and bronze knives, bronze awls, flint scrapers, utilized flakes, fabricators, axes). True weapons are rare; barbed and tanged, leaf-shaped, and pointed and oblique arrowheads, stone maceheads, battle axes, grooved daggers, and a tanged spearhead are known. Objects of gold, amber, jet/shale, shell and other exotic substances are also found, and "...the 27 graves containing exotic substances are confined to England...." [Longworth, 1984: 75] Only 26% of the burials contain any associated artefacts, and "...no object or cup is restricted in its associations to Collared Urns alone and all can be seen as a further facet in the general spectrum of available choice...." [Longworth, 1984: 49]

It is Longworth's opinion that sites of a domestic or "non-funerary" nature can be seen whose predominant associations are with Collared Urns--thus completing the

requirements of a culture by the Childean definition. The evidence is of an ephemeral nature, however, leading Longworth to conclude that "...scattered and temporary nature of many of the episodes...must lend support to the suggestion that a major...component of the life of Collared Urn users was stock-rearing...." [Longworth, 1984: 78] Twenty-two of the contexts are considered by Longworth to represent occupation; the evidence is primarily from surface collections. The remainder of the associations are in the form of "occupational debris" incorporated in the ditch fills of barrows, henges, and ring cairns--some thirty nine occurrences. There are also two occurrences associated with causewayed enclosures, four with boundary bank/ditch systems, and nine with caves, rock shelters or crevices.

In a recent article, Colin Burgess has reviewed Longworth's work on Collared Urns³¹ This article had a twofold purpose: to provide comprehensive criticism of Longworth's book, and to offer a new system of Collared Urn typology, aimed at eliminating the perceived inadequacies of Longworth's scheme.

In this Burgess is at least partly successful. He mentions all the criticisms made earlier in this chapter and adds others, in particular the instances of vessels included in the Longworth corpus "...which should not be there...bipartite Food Vessels and Enlarged Food Vessel Urns...Cordoned Urns...Ridged Enlarged Food Vessel Urns..." [Burgess, 1987: 340-1. This author also confesses to having difficulty distinguishing between these various forms, and can sympathize with Longworth in this respect.]

³¹Burgess, C. "Urnes of no small variety: Collared Urns Reviewed," *Proc. Prehist. Soc.* 52 (1986): 339-51.

Burgess constructs his arguments for a new Collared Urn typology around a discussion of the relationship between Food Vessels and Collared Urns. He begins with Longworth's difficulties in explaining the apparent "lack of contact" between Food Vessels and Primary Collared Urns, particularly in East Yorkshire where both types appear to be centrally concentrated, "...having accepted that Primary Collared Urns and Food Vessels were to a large extent contemporary..." [Burgess, 1987: 343]. The relationship between Food Vessels and Collared Urns appears to present difficulties for Burgess as well, for on the previous page he states: "...the demise of Collared Urns was no more curious than that of the Food Vessel tradition which they had earlier ousted..." [Burgess, 1987: 342]. Yet further on, he says "...this cannot be on the basis of all we know about associations and chronology..." [Burgess, 1987: 343].

Having established the initial conundrum, Burgess suggests that it can only be solved "...by examining the typological survey which is the key to Dr. Longworth's thesis..." If one will

...take individual C14 dates with a pinch of salt, and question some of the contrary site evidence of recent years...then all the difficulties begin to disappear.... [Burgess, 1987: 343].

Burgess' main objection is to Longworth's division of Collared Urns into a Primary and Secondary series. on the basis of devolution of "primary traits"; vessels with 4-6 primary traits being "early", 2 traits "not so early", and 1 or no traits "not early". This division, Burgess argues, is "...too simple for material that has to be spread over five hundred radiocarbon years...with the majority of vessels falling into the last ("not early") category..." [Burgess,

1987: 343-4]. He proposes instead that (1) the "late" traits must also be considered, and that (2) the ratio of the early to late traits will provide the key to ordering vessels.

With these points in mind, Burgess has selected eight "early" traits and ten "late" traits which can be used for classifying vessels. The "Early" list is based largely on Longworth's "Primary trait" list, with modifications, the "Late" traits on suggestions in Burgess and Varndell, 1978. They are as follows:

"Early" Traits

1. Internal decoration below the rim.
2. Short line motif repeated on the collar and neck.
3. Body decoration below the shoulder (apart from body lattice).
4. Use of whipped cord decoration.
5. A shoulder groove or vestigial stop groove.
6. An internal moulding.
7. A narrow, convex, or straight-profiled collar (ie. under 20% of total height).
8. An upright narrow collar (ie. under 20% of height.)

"Late" Traits

1. Bold decorative patterns.
2. No decoration below the shoulder.
3. Corded arcs on shoulder.
4. A deep, hat-like collar.
5. A 'peaked' collar base.
6. An angular, 'straight-line' profile.
7. Inner profile forms a continuous unbroken curve from rim to base.
8. No neck or shoulder (ie. a bipartite form).
9. A disproportionately narrow base (ie. less than 30% of maximum diameter).
10. Maximum diameter as great as, or greater than, vessel height.

These traits are illustrated in figure 2 [op. cit., pp. 348]. The ratio of "Early" to "Late" traits can be used to define Burgess' typological groups: "Early", "Middle", and

"Late". The ratio of early to late alone is not sufficient, however, as "...some traits were more important than others..." [Burgess, 1987: 345]. Among the traits which Burgess considers to be of greater "weight" are the presence of an internal moulding as "Early" trait 6 [Burgess, op. cit., pp. 345], and "...bases markedly narrow in proportion to maximum diameter..." [Burgess, op. cit., pp. 344] as "Late" trait 9. Burgess also takes associations into account in order to determine the proper "weighting" of his eighteen traits.

"Early" urns can be defined, then, as having "...at least three Early traits, or two, if one is an internal moulding, and no late traits...." "Middle" urns can "...retain up to three "Early" traits, but normally to have late traits, with a difference between the two of not more than two traits...." "Late" urns then should not have "...more than one Early trait to survive...there should be a Late trait advantage of at least three..." [Burgess, 1987: 348]. Examples of "Early", "Middle" and "Late" urns are given in Figure 1 [Burgess, op. cit., pp. 346-7].

Armed with these definitions, Burgess proceeded to check the distribution of Longworth's Primary urns once again, with the conclusion that there are, indeed, very few "Early" urns from Britain north of the Mersey-Humber line.

...the conclusions are inescapable. Food Vessels and Collared Urns did indeed emerge at about the same time, but in different parts of the country. Both were developed from local styles of Peterborough Ware, but Food Vessels in north-east Britain between Humber and Forth, Collared Urns like a swathe of southern Britain shaped like a figure 7.... [Burgess, 1987: 349].

Having resolved Longworth's difficulties, Burgess concludes with a revision of his 1980 chronological framework for the Bronze Age [Burgess, 1980: 79-159].

1. The Fargo Phase: c. 1800 - 1600 bc. This phase features beakers of steps 5 and 6, and the emergence of Food Vessels in the north (Irish Bowls in Ireland), and "Early" Collared Urns in the south.
2. The Bush Barrow Phase: c. 1600 - 1450 bc. The Wessex I period re-named, featuring step 7 beakers, and Collared Urns of the "Middle" variety, which are now spreading to the north, as Food Vessels are declining. "Enlarged" Food Vessels are now common.
3. The Aldbourne-Edmonsham Phase: c. 1450 - 1250 bc. The Wessex II period re-named; post-beaker and post-Food Vessel. Collared Urns are now of the "Late" variety.
4. The Knighton Heath Phase: c. 1250 -1050 bc. Post-Collared Urn, now replaced by the Deverel-Rimbury types.

We can draw together Burgess' conclusions into two broad headings, typological and chronological, and consider them in that order. Beginning with the typological considerations, Burgess' analysis rests on his division of Longworth's Primary and Secondary into "Early", "Middle" and "Late". As these assignments are dependent on the ratio of "Early" traits to "Late" traits, it would seem likely that the "Middle" group will be an agglomeration or a "transitional phase", rather than a type in itself. This is quite clearly seen in figure 1 [op. cit., pp. 348], where the "Middle" group of urns appear to be something of a "catch-all" for those vessels which are neither "Early" nor "Late". Figure 1 is revealing; these urns are presumably the best examples of Burgess' three types, yet a re-analysis of these urns using Burgess' list of traits finds a number of inconsistencies.

Of the thirty vessels chosen as examples, Burgess has selected twelve "Early", seven "Middle", and eleven "Late".

When re-examined according to Burgess' ratio scheme, seven of the twelve "Early" are "Early" type, one is "Middle" type, and four are impossible to assign, on the basis of Burgess' definitions. The same is true of the "Middle" and "Late" urns, where a number of vessels cannot be assigned, due to Early-to-Late trait ratios which fall outside the scope of Burgess' classification. These include ratios of 4 (Early) : 2 (Late); 1 : 3, and 5 : 5. Presumably these difficulties are to be resolved by reference to distinctions of "context and associations", but since context and associations are never discussed in other than a superficial fashion, it is difficult to know which "context and associations" Burgess is considering to be "Early" and which "Late". Those urns which have ratios placing them in groups different to those assigned by Burgess are even more worrying, such as West Overton 6b, an "Early" urn with a ratio of 2:2, which would place it in the "Middle" group by Burgess' classification, or Herd Howe, a "Late" urn with a ratio of 2:4, which should place it in the "Middle" group. There are two possible conclusions one can reach on the basis of this evidence; either the definitions of Burgess' eighteen traits are not sufficiently distinct to allow for accurate typing of vessels, according to his interpretation, or, vessels are being assigned on a basis other than "Early" and "Late" traits, presumably again, "context and associations," which appear to be given priority over typology.

There are other difficulties with individual traits. Turning again to the vessels of Figure 1, it can be seen that "Early" trait 1 (internal decoration below the rim) is common to eighteen vessels out of thirty, and to seven of eleven "Late" vessels. Similarly, "Late" traits 4 and 5 (a deep, 'hat-like' collar; a 'peaked' collar base) are common to twenty-one of thirty vessels, and occur on five of twelve

"Early" vessels. "Late" trait 3 (corded arcs on shoulder) occurs on two vessels only; Market Lavington 2, and "Early" type, and Easton Down, a "Late" type. A review of Longworth suggests that this decoration technique is uncommon at best. "Late" trait 10 (maximum diameter greater than or equal to height) occurs on three vessels; two "Early" (West Overton 6b and Market Lavington 2) and one "Middle" vessel (Eglwys Bach). Re-analysis of the first two vessels suggests that they should both be "Middle" on typological grounds, in either case, they do not appear to support Burgess' statement that "... 'late' vessels are quite as likely to be about as wide, or even wider, than they are high..." [Burgess, op. cit., pp. 343]. "Late" trait 9 (a disproportionately narrow base, less than 30% of maximum diameter), one of Burgess' more important indicators, occurs on only one vessel, from Callis Wold 114.

Good indicators of type, on the basis of Burgess' illustrations, appear to be "Early" traits 2 (repeated short line motif), 3 (body decoration below shoulder), 4 (whipped cord decoration), 5 (shoulder groove), 6 (internal moulding) and 8 (upright, narrow collar). Good "Late" indicators are 2 (no decoration below collar), 6 (angular profile), 7 (inner profile a continuous curve) and 8 (bipartite profile). "Late" trait 1 has not been included, on the basis that "bold decorative patterns" is not a sufficiently precise definition. Overall, the evidence presented by Burgess on typological grounds is not impressive, and one is left with the impression that more effort should have been put into defining the effect of "context and associations" which appear, from the illustrations at least, to take precedence over typology.

Turning to the chronological aspects, it is evident from both the choice of terms (Early, Middle, and Late) and from

his chronological summary, that Burgess considers these types to be chronologically successive. Referring again to his Bronze Age framework, we can see that the "Early" urns emerge c. 1800 bc., and continue until c. 1600 bc. "Middle" urns are current at this time, continuing until c. 1450 bc. "Late" urns are common from c. 1450 to 1250 bc. This table does not provide for overlap between the three types of urn, and it is not clear from Burgess' review if he would place any overlap on the phases, although his typology would suggest some overlap between "Early" and "Late" (hence the "Middle" type), rather than distinct periods. The framework also provides a reference for associations between Collared Urns and other pottery types, placing "Early" urns with step 5-6 beakers and Food Vessels, "Middle" urns with step 7 beakers, and "Late" urns both post-beaker and post-Food Vessel.

Date b.c.	Collared Urn Type	Beaker Type	Other
1800	Early	Steps 5-6	Food Vessel
1450	Middle	Step 7	Wessex I
1250	Late	post-beaker	Wessex II

"Earliness" is based, as with Longworth, on the degree of similarity to the Peterborough parent-type, and the labels "Early", "Middle" and "Late" are assigned by resemblance to the Fengate style. The phases are given time-periods to accord, presumably, with the currently accepted chronology. They certainly are not based on the radiocarbon evidence, quite the contrary in fact, for Burgess states that "...Radiocarbon dates have not been used; indeed, they would completely contradict the groupings given here...." [Burgess, op. cit., pp. 347]. This will be considered in more detail below.

Longworth's main hypotheses can be summarized:

1. The Collared Urn tradition can be divided into a Primary and Secondary series, which can be distinguished from each other on the basis of typological, chronological and distributional grounds.
2. The Primary series represents the initial development of the Collared Urn tradition, out of the later stages of Peterborough Ware. It is more "Neolithic" in character than the ensuing Secondary Series.
3. The Secondary Series follows the Primary Series chronologically, and can be defined as having almost none of the Peterborough Ware parent traits. Distributionally, it covers a wider area than the Primary Series.
4. The Secondary Series can in turn be broken down into a Northwestern and a Southeastern style, which can be distinguished on typological and distributional grounds.
5. The funerary associations and artefacts are eclectic, and add little other than a generalized picture of Bronze Age traditions.
6. There are a series of sites of a domestic nature associated with the Collared Urn burials, thus allowing the tradition to be defined as a Culture in the Childean sense.

Each of Longworth's main points can be broken down and examined in turn. To begin, there is his division of Collared Urns into a Primary and Secondary series, groups which ^{he} considers to be distinguishable from each other typologically, chronologically, and distributionally.

There seems little to disagree with on typological grounds, at least between the Primary and Secondary Southeast series, which are readily distinct both in form and motifs. This is not so true with Primary and Secondary Northwest, which while still capable of some separation, have much more of a sense of "continuity" (if they can in

fact be considered a developmental sequence). An analysis of the percentage of form types for Primary and Secondary Urns shows that in all groups forms Ia-c are preferred over all other forms, often by a considerable amount.

Table 4: Percent of Form Types for Primary and Secondary Collared Urns.

Type:	% Primary	% Northwest	% Secondary Southeast
I			
Ia	63% — [6 28	34% — [4 16	35% — [4 15
Ib	21	6	8
Ic	8	9	6
II	8	8	5
III	4	16	5
IV	1	2	2
V	1	6	—
BI	3	1	2
BII	1	1	24
BIII	1	—	7

In considering the possible chronological distinctions, there are two sources of information to take into account. The first is stratigraphy and artefact associations, which will be dealt with later. The second is absolute chronology.

Longworth has very little to say concerning the radiocarbon chronology of Collared Urns. He illustrated the known dates as a single series plot to two standard deviations³². After his lengthy discussion of the relative chronological positions of the Primary and Secondary series, one might have hoped to see this demonstrated via the ¹⁴C dates. Perhaps his most telling statement is his opening paragraph of chapter six, "...it is not possible to put

³²Longworth, 1984: 79, fig. 41.

forward an absolute chronology for the life of the Collared Urn tradition beyond the general indication of time span provided by the few ^{14}C dates now available...." [Longworth, 1984: 79]. His discussion of the radiocarbon evidence occupies one paragraph.

In appendix 11, Longworth lists thirty ^{14}C dates, of which twenty-six can be ascribed to Urns of the Primary or Secondary series, or both (the remaining four cannot be ascribed to either series). Eliminating those dates which are clearly only very tentatively related, produces a list of twenty-eight dates³³; fourteen for the Primary Series, and fourteen for the Secondary Series.

Even a cursory analysis of these lists elucidates Longworth's difficulty with the radiocarbon evidence [§see also fig. 22, pp. 537]. The earliest date for both Primary and Secondary Series urns is from charcoal taken from a palisade at Bleasdale, Lancashire, where Primary and Secondary urns were found together in the barrow. The relationship between the barrow and palisade is uncertain, so the date must be seen with a certain amount of scepticism. The first firm date for a collared urn is for the Secondary Series, from Brightwell Heath, Suffolk, (NPL 133) 1770 ± 130 b.c. The first firm date for a Primary Series urn is from Llanrhaiadr yr Cinmerch, Clwyd, (HAR 712) 1670 ± 60 b.c.

Viewing the dates for Primary and Secondary Series suggests at the very least that there is little difference in absolute terms, even given the relatively few numbers. The latest date for the Secondary Series is 990 ± 80 b.c. (HAR 2091), for the Primary Series, 1050 ± 150 b.c. (BM

³³§see appendix 4.1, pp. 444.

177). Given the contemporaneity of the Primary and Secondary series dates, it seems difficult to support the idea of them forming a chronological sequence. This is confirmed by boxplot analysis [§fig. 23, pp. 538].

Analysis of vessels using Burgess' typological scheme further supports this conclusion. Kruskal-Wallis analysis [see chapter 1, section 1.4 for a discussion of this technique] produced the following results:

Group:	No. Dates:	Median:	Ave. Rank:	Z value:
Early	7	1395	12.6	- 0.98
Middle	9	1535	18.6	+ 1.24
Late	14	1465	15.0	- 0.31
Overall	30		15.5	

$H = 1.877$, for two degrees freedom, $H > 0.500$; 50% probability.

The H value suggests, as with Longworth's Primary and Secondary groups, that the null hypothesis is justified; that these groups are from one population (*i.e.* contemporary). Within that, it can be seen by the average rank column, that the order should be Middle/Late/Early, rather than Early/Middle/Late. This is confirmed by the Z values, which separate the Middle urns (a positive value) from the Early and Late (both negative), though none is significantly different. Boxplots of the three groups suggest the following ranges [§see also fig. 24, pp. 538]

Group:	LIF	LH	MH	UH	UIF
Early	1265	1345	1395	1510	1680
Middle	----	1515	1535	1665	1810
Late	1260	1410	1465	1530	1720

Comparing these ranges to Burgess' suggested ranges;

Group:	Burgess:	Boxplot:
Early	1800 - 1600	1680 - 1265
Middle	1600 - 1450	1810 - 1515
Late	1450 - 1250	1720 - 1260

It can be seen that the radiocarbon dates bear little relation to Burgess' scheme [fig. 25, pp. 539]. The total duration of each phase as defined by the fence range (encompassing c. 95% of dates) is greater than twice that defined by Burgess. Considering the hinge range (encompassing c. 50% of the dates), the total duration for each phase is closer to Burgess' estimates, but rather than three distinct periods, two overlapping but successive periods are suggested:

"Middle"	c. 1665 - 1500 b.c.
"Early" and "Late"	c. 1530 - 1350 b.c.

This, however, suggests an interesting alternative view. It would appear that the "Middle" group, which, it was suggested earlier, seemed more of an agglomeration than a properly defined type, is both slightly earlier and shorter-lived than the "Early" and "Late" types, which are essentially identical in date range. If one wished to see any form as "earlier", it would seem more correct then to interpret the less-well defined "Middle" form as "early" attempts at making cinerary vessels, which then absorbed other influences, and became better-defined as the "Early" and "Late" styles. This view could be corroborated on typological grounds, by the obvious Food Vessel influences on "Early" Collared Urns, as for instance "Early" trait 5 (a

shoulder groove or vestigial stopped groove), which is a direct Food Vessel borrowing.

Considering also the radiocarbon dates for each of Burgess' eighteen traits, it can be seen that they are largely contemporary, overlapping extensively in the inner quartile ranges. There is no significant difference in their ranges, and no evidence to suggest that the "Early" traits were any earlier than the "Late" traits, or vice-versa [§fig. 26, pp. 540].

Analysis elsewhere [§Bronze Age chronology, pp. 183] has shown Collared Urns as a whole to be contemporary with step 7 beakers, post-dating the inner quartile and hinge ranges for steps 5-6 beakers and Food Vessels. It appears, on the basis of dating evidence, that Burgess' "writers of yesteryear" were correct: Collared Urns are later than Food Vessels, and this would explain why in burials containing both types, Food Vessels are usually primary. It does not explain why Food Vessels are essentially a northern tradition, and Collared Urns a southern tradition: this is a question which neither Longworth nor Burgess has attempted to answer, and which must be left for further research.

In discussing the distributional distinctions between Primary and Secondary Urns, it is convenient to include a discussion of the two styles of the Secondary Series: Northwest and Southeast. There are too few radiocarbon dates for these two styles to make any attempt to distinguish them by absolute chronology, nor does Longworth suggest that they are anything but contemporary. Northwest and Southeast styles are distinguished on typological and distributional grounds, as discussed above.

Longworth illustrated the relative density of distribution of the two series in figures 16, 24 and 30. These diagrams are based on the calculation of the percentages of each type (Primary, Secondary-Northwest, Secondary-Southeast) relative to the total number of urns per county. From this he concludes that the Primary Series is strongest (relative density of >50%) in the counties of Cornwall, Somerset, Buckingham, Northampton, Gwynedd, and the borders of Scotland. The Secondary Series-Northwest is strongest in Lancashire, Greater Manchester, West Yorkshire, South Yorkshire, and Derbyshire, the Southeast in Essex, Surrey, and Gloucestershire (the last two falling within the 40-49% range).

There is some question as to the validity of this technique of calculating density when comparing between counties, in order to establish areas of "strength" and "weakness" of a tradition, especially when Longworth's conclusions bear little or no relation to his distribution maps. If one re-calculates the density of each type per county as a percentage of the total urns of that type, a slightly different picture emerges, which is more in keeping with the known distribution [table 21, pp. 493]. Taking the Collared Urn tradition as a whole, the counties with the highest percentage of urns are North Yorkshire, 12.1%, Dorset, 7.8%, Wiltshire, 5.7%, and Humberside, 4.7%. For the Primary Series, the counties with highest density are West Yorkshire, Humberside, Derbyshire, Gwynedd, Wiltshire and Dorset. For the Secondary Series-Northwest, North Yorkshire, Derbyshire, West Yorkshire, Lancashire, Cumbria, and Fife, the Southeast, North Yorkshire, Humberside, Cambridge, Wiltshire, and Dorset. If one compares the two analyses, it becomes apparent that while Longworth's method may allow ^{one} to state which tradition is numerically dominant within a county, it does not allow one to compare

densities between counties, nor does it accurately reflect the country-wide situation.

Returning to Longworth's distribution maps, it becomes apparent that the bulk of the Collared Urn tradition lies in the Yorkshire Wold-Derbyshire Peak area, along the Fen Edge in East Anglia, and in Wessex. The Northwestern style has concentrations in the areas of Cumbria, and the coasts of the Lothians and Fife, the Southeastern style in Wessex and the South coast, and the Fen Margin. Both have heavy concentrations in the Yorkshire Wolds, as does the Primary Series, which appears to reflect the distributions of both the Northwest and Southeast styles. As it cannot be shown that the Primary style is chronologically earlier, it must be assumed that these three styles were current throughout the area of Collared Urn distribution.

Turning to the second hypothesis, the chronological position of the Primary series has already been discussed. In order to evaluate its relationship to the Peterborough Tradition, some definition of that tradition is first required.

2.2 The Peterborough Ware Tradition

The Peterborough Ware tradition was dealt with by Isobel Smith in her dissertation for the University of London³⁴, and remains the most complete study of this pottery type.

...the south-eastern area was extremely important...scene of evolution of Peterborough Ware from simple Neolithic bowl to Bronze Age overhanging-rim urn... [Smith, 1956: 68]

³⁴Smith, I.F. The Decorative Art of Neolithic Ceramics in South-Eastern England and its Relations, University of London, Ph.D. Thesis, 1956.

She began with two important assumptions:

1. The Peterborough complex could be divided into three styles: Ebbsfleet, Mortlake, and Fengate, each based on its type site.
2. These styles represented a developmental sequence both typologically and chronologically.

She felt that the most useful primary criterion for dividing the pottery sequence was form, and lacking many complete vessels, worked from a corpus of 350 rim sherds, relying mainly on the shape and angle of the rim. Her results can be summarized:

A. The Ebbsfleet Style:

1. ware; thin, hard, well fired, tempered with small flint chips, crushed granite and sand, wet-smoothed.
2. form(s); globular body, well defined neck, with three neck profiles, round base, five characteristic rim forms, E1-2 producing wide-mouthed bowls, E3-4 necked bowl/jars.
3. decoration; lack of ornament or ornament confined to the rim. scoring, fingernail impressions, pitting, punctuation, and whipped cord techniques. common motifs are lattice pattern on the rim and shallow groove at the neck. one/two decorative techniques or motifs per vessel.

B. The Mortlake Style:

1. ware; coarse, poorly fired. large, angular grits of flint, crushed granite, quartzite, shell, and grog. wet-smoothed.
2. form(s); bowls with heavy rims, short, concave neck, pronounced carination, round base.
3. decoration; decoration external/internal, on rim, neck and body. horizontal rows of short stamp--chevron/herringbone pattern most common technique. cord line divide/define areas of decoration into zones. rustication. ridges, frequently incised. curvilinear decoration on internal rim. bird bone impressions. two or more decorative techniques per vessel.

C. The Fengate Style:

1. ware; coarse, poorly fired. flint, stone grits, grog. some vessels with fine surface finish.
2. form(s); elongated rim, no neck, truncated cone/cylinder body, flat, narrow base, well-defined foot. three rim sub-types.
3. decoration; differentiation between rim and body decoration motifs. line of pits below rim. organized designs on rim--chevron, filled triangles, twisted cord. scattered fingernail impressions on body. fingernail chevron or lines on internal rim bevel.

Smith felt that "...in some respects the decoration on Fengate ware resembles more closely that on Ebbsfleet than that on Mortlake ware..." [Smith, 1956: 116], however, "...a series of intermediate forms leading from the Mortlake to the Fengate type can be discerned...." [Smith, 1956: 109].

That the three types formed a chronological series Smith suggested could be demonstrated by relative stratigraphy, with Ebbsfleet Ware occurring in the lowest levels of the ditches of causewayed camps, the primary filling of the ditches of long barrows, and the Cotswold-Severn tombs, positions contemporary with developed Windmill Hill ware. Mortlake pottery occurred in the secondary silting of the ditches of long barrows, the blocking of chambered tombs, and in primary position under round barrows and in their ditch filling. It paralleled Rinyo-Clacton or Grooved Ware, and early beakers. Fengate ware occurred in primary association with round barrows. Some vessels showed imitation of A-C beakers (Clarke's S₁-S₃, Lanting and van der Waals' steps 5-6).

In analysing the artefacts associated with Peterborough ware, Smith stated that "...there is not a single association with a type defined by Piggott as Secondary

Neolithic...." [Smith, 1956: 119]. This was in sharp contrast to her analysis of the Rinyo-Clacton culture, the bulk of whose artefact associations were with "Secondary Neolithic" types.

The associated artefacts were almost entirely stone products, predominately flakes or blades, with a few axes or arrowheads. Only a small proportion of the pottery had any associated artefacts at all, and most of the artefacts were derived from sepulchral contexts. Late in the tradition, polished flint knives and ornaments of jet or lignite occur in graves associated with Peterborough Ware.

In terms of contexts, 63% of Peterborough finds were associated with domestic sites, while 13% came from river deposits. Peterborough pottery was also associated with causewayed camps, the silting of the ditches of long barrows, and "hut floors".

Smith discussed the survival of the Peterborough tradition, in terms of the two pottery styles she felt it engendered: Food Vessels and Overhanging-rim (Collared) urns. "...the prototypes of both Food Vessels and Urns emerged at the same time...the two forms represent parallel developments...." [Smith, 1956: 159] She felt that the contemporaneity of "proto-food vessels" and "proto-urns" with A beakers (Clarke's Southern series) allowed for the passage of some beaker techniques and motifs to each of these styles, however

...once the overhanging-rim urns had become established as a more or less standardized form, very little trace of beaker influence can be detected...otherwise every regularly occurring decorative motif and technique in overhanging-rim urns can be matched in Peterborough ware....[Smith, 1956: 160-1]

She derived the Collared Urn series from Fengate ware, on the basis of shape; deep rims, conical pots which are bipartite, and necked versions (tripartite), and narrow bases, and decoration; cord impression, herringbone/chevron pattern, lattice pattern, rim-neck pitting, crescentic cord maggots, filled triangles, and lozenge patterns.

Examining the evidence for the derivation of Primary Collared Urns from Peterborough Ware, one can consider the typological, chronological and distributional information. Again, the typological ground seems fairly sound. Precedents for all of Longworth's Primary series traits are found in the Ebbsfleet, Mortlake, or Fengate styles.

Table 5: Comparison of Peterborough Ware and Primary Collared Urn Traits.

Primary Series Trait:	Peterborough Precedent:
1. internal moulding	1. fengate (Smith, fig. 5, F1-F3)
2. simple, pointed, rounded or flattened rim, or with simple, expanded rim bevel	2. ebbsfleet (fig. 3, E4), fengate (fig. 5, F3)
3. collar form with convex or straight external surface.	3. fengate (fig. 5, F2, F3.)

- | | |
|---|---|
| 4. internal decoration
other than on the rim/bevel | 4. mortlake (pp. 98ff) |
| 5. well-executed
herringbone or repetitive
vertical/diagonal short-line
motifs on collar and neck. | 5. mortlake (pp. 98ff) |
| 6. decoration extending
below the shoulder or
greatest body diameter onto
the body. | 6. ebbsfleet (pp. 92),
mortlake (pp. 98ff) |
| 7. use of whipped cord | 7. ebbsfleet (pp. 90),
mortlake (pp. 99ff) |
-

The chronological grounds for the derivation of Collared Urns from Peterborough ware are somewhat less secure. There are very few ^{14}C dates known for Peterborough ware, but those which do exist suggest that the tradition did not continue much after c. 1800 b.c. [§appendix 4.2, pp. 447 & fig. 27, pp. 541]

The dates available range from 3170 ± 110 b.c. (HAR 481) to 1360 ± 150 b.c. (BM 187). The boxplot method is of little value on so few dates, however when the hinges are calculated, the inner hinges for Peterborough ware fall between 2600-1750 b.c., well above the 1560-1330 b.c. inner hinges for Primary Collared Urns [§fig. 28, pp. 542]. This is not to suggest that the two traditions do not overlap--the outer hinges of the Peterborough tradition falls within the uppermost range of dates for the Primary Series of Collared urns (if one includes the date of 1810 ± 90 b.c., which may be open to question). However, whatever stimulus to Primary Collared Urns came from Peterborough Ware must have been derived from the very end of the Peterborough tradition.

The distributional evidence does not strengthen the case. Following the distribution map which Smith produced for British Prehistory, [Renfrew, 1974, fig. 15, pp. 114], the primary area of Peterborough Ware distribution can be seen to be the Thames Valley. There are small groups on the Derbyshire Peak, in the region of Flamborough Head, and in the Wessex area, but these appear to be secondary to the main concentration. Examining in turn the distribution map of the Primary Series, the one area which is almost completely devoid of urns (and this is true for the Secondary Series as well) is the Thames Valley. The concentrations of urns on the north-east coast and in Wales are not reflected in Peterborough Ware. The two distributions are not complete opposites, but are in large part complementary rather than overlapping.

This picture is reinforced if one examines Longworth's appendix 2, listing vessels carrying traits of the Primary Series. If one looks for those vessels which should be most like the Peterborough-parent type; those with six or seven of the Primary Series traits, one finds that there is one from Essex, two from Wiltshire, and the remainder, some 14 vessels, come from the north and west. As a percentage, those carrying six or seven traits make up 3% of the total Primary Series; those with two-three traits make up 70%, those with four traits or less make up 86%. In the counties which can be said to fall within the Thames Valley area (Surrey, Berkshire, Oxfordshire, Wiltshire, Greater London, Hampshire, Buckinghamshire), most have vessels carrying two traits.

These problems were pointed out by Burgess and Varndell, in their paper on "The chronology and development of Collared Urns."

...only one primary series vessel is known to have come from Peterborough itself, and this is perhaps of interest in view of the well-accepted view that Collared Urns evolved from Late Neolithic Peterborough, especially Fengate, ceramic traditions...the nature of this "evolution" is still very vague and the evidence from the type site would not suggest that it took place in the immediate vicinity. A convincing explanation of the evolutionary process would be difficult to suggest, as most Primary Collared Urns derive from funerary contexts whereas most Late Neolithic Peterborough sherds come from domestic sites.... [Burgess & Varndell, 1978: 104]

While these questions do not negate the view that the Primary Collared Urns developed out of Peterborough Ware, they do suggest that such an evolution is not straightforward.

2.3 Artefact Associations and the Collared Urn Tradition

The remaining points; whether the Primary series can be considered more "Neolithic" in character than the Secondary series, and the importance of the funerary and artefactual associations, can be most effectively covered as a discussion of the evidence presented by Longworth in his chapter four. Longworth has stated that while some regional variation in artefact types exists, as a whole the funerary practices and associated artefacts are of such a varied nature that only broad generalizations are possible. While this is at least partially true, in that there are no clear-cut differentiations, there are still several points which can be made.

These fall into two categories. First, continuing the earlier line concerning the contemporaneity of the Primary and Secondary series, there are two "artefact" types which lend support to the chronology provided by the radiocarbon

dates. The first comes from an examination of appendix 9: (Collared Vessels associated with inhumation and with mixed inhumation/cremation rites). If the shift from inhumation to cremation as the dominant funerary rite can still be taken as a chronological indicator, then it is interesting to note that of the twenty-four burials which can be assigned to either Primary or Secondary urns, twelve are with Primary and twelve with Secondary series.

The second point is drawn from the artefact list in chapter four, in particular the small amount of gold work associated with Collared urn burials. Joan Taylor has suggested that the Wessex "gold horizon" was in fact a very short time-span, perhaps only as long as a generation [Coles & Taylor, 1971]. Of the four pieces of goldwork associated with Collared Urns, two are with Primary Series, and two with Secondary.

The second category concerns the regional variations in artefact distribution, and their relationship to other contemporary traditions, particularly beakers and the Wessex culture. These are not immediately apparent if one is analysing the artefact associations in terms of Primary and Secondary series, as Longworth has done. Here there is a sense of uniformity within the tradition, although something can be seen to be happening, if one looks at the apparent paucity of all artefact types except exotics associated with the urns of the Southwest style [table 22, pp. 495].

Table 6: Summary of Collared Urn Artefact Associations.

Artefact Type:	Total Number of Associations Group:			
	Primary	Secondary	Northwest	Southeast
Pottery	33	46	35	28
Clay	1	4	3	0
Bronze	26	28	17	9
Bone	19	36	19	4
Flint	30	31	26	4
Stone	12	2	7	6
Shell	1	0	0	1
Exotics	36	23	9	15

(note: Secondary here represents not the total for Northwest and Southeast, but for those urns which were not assigned to either category)

If one instead breaks down the artefact types by county this differentiation becomes more marked. For the associations of pottery, bronze, bone, flint, and stone, (with the exception of the counties of Dorset and Wiltshire); these predominate in the Yorkshire/Derbyshire area, in north Wales, the northern Fen Edge, and south-east Scotland. The artefacts of exotic substances, however (gold, amber, shale, jet) are concentrated in Wessex. There is no particular contrast between the numbers associated with Primary and Secondary series urns; the contrast is a regional one.

This suggests that perhaps the influencing factors lie outside the Collared Urn tradition itself. Leaving aside for the moment the question of Collared Urn--Food Vessel relationships, the other two major cultural groups currently available to influence the Collared Urn tradition are late beakers (steps 5-7) and the "Wessex Culture".

If one takes the major beaker-associated artefact types; the pottery itself, tanged knives, tanged and riveted knives, flat riveted knives, double pointed, square sectioned awls, bone spatulae, barbed and tanged arrowheads, whetstones, wristguards, v-perforated buttons, and looks for their occurrence with Collared Urns, an interesting pattern emerges. Only one item--an awl--comes from within the Wessex area. The remaining items, from thirty-nine sites, come from outside the Wessex region, and predominantly from the north and west. Twenty-two of these are associated with Secondary Series urns, the others with Primary Series.

Examining in turn material of the Wessex culture type, as defined by Stuart Piggott in 1938³⁵; ribbed bronze daggers, accessory "aldbourne" or "grape" cups, faience beads, gold ornaments, amber beads and pendants, stone battle axes, amber/shale cups, bronze awls, bone pommels, bone tweezers, these items are found, in the main, in the Wessex area, and the immediately surrounding regions. Again there is a nearly even distribution between Primary and Secondary series³⁶. This pattern could lead to the suggestion that this distribution results from an emulation, either intentional or otherwise, of the existing or "dominating culture" in the particular area in which the Collared Urns were being made and used.

Other explanations are possible. The emulation theory assumes that Collared Urns represent a distinct social group--which is the grounding for all Longworth's discussions. It is presumably this basic assumption which

³⁵Piggott, S. "The Early Bronze Age in Wessex," Proc. Prehist. Soc. 4 (1938): 52-106.

³⁶some Collared Urn burials are, of course, defined as Wessex burials, on the basis of their other grave goods.

leads him to include chapter 5, "Domestic and non-Funerary Contexts." Unfortunately the evidence as presented does little to support this assumption. As Longworth himself states the evidence is too fragmentary to form any clear impression of the domestic mode of life of the Collared Urn users. The evidence such as there is does not indicate that "Collared Urn-user" sites can be distinguished by any other criteria from other Bronze Age domestic sites. In the absence of distinct domestic sites, a distinct burial ritual, specific artefact associations, or a unique distribution, it is difficult to view "Collared Urn-users" as a separate cultural group. It seems equally possible, given the evidence Longworth presents, that Collared Urns do represent a "specialized form intended purely for funerary use," as Burgess has suggested [Burgess, 1980: 84], and that their emulation of "Beaker" or "Wessex" burial types is the result of the inclusion by Bronze Age people of one of the available Bronze Age pottery styles in a contemporary burial type, whose style (and contents) may be determined by regional variations in an overall cultural pattern..

To "draw together all these strands" as Burgess has attempted, we can suggest that:

1. There appears to be no chronological distinction to be made between the Primary and Secondary series, any of their styles, or styles labeled "Early", "Middle" and "Late" by Burgess. Although analysis of the hinger ranges indicates that "Middle" urns may be slightly earlier than "Early" and "Late" urns, there is no significant statistical difference between their respective ranges.
2. There would appear to be a typological distinction which could be made between the "Primary" and "Secondary" series or the "Early" and "Late" types, although the definition of traits could be more precise. It is

suggested that, in the case of Burgess' typology, "Early" trait 1, and "Late" traits 4 and 5 be eliminated due to their general nature, and "Late" traits 3, 9 and 10 be dropped because of their rarity.

3. It is suggested that the relationship between Food Vessels and "Early" type Collared Urns be examined in greater depth. It has been noted that Collared Urns succeed and overlap Food Vessels chronologically; it is further noted that there is no trait in Burgess' "Early" list which would be out of place in a description of Food Vessels, and that at least one trait (Early 5) is a direct borrowing from the Food Vessel repertoire, rather than from the general Peterborough Ware tradition. It could be speculated that "Early" Collared Urns represent a borrowing of, or hybridization between, Food Vessel traits and Collared Urns.

Chapter 3: Food Vessels

Unlike beakers and Collared Urns, no modern corpus has been produced for Food Vessels, and no generally-accepted typology exists. This is not due to lack of study; Food Vessels have been recognized and described at least as long as beakers, yet no comprehensive analysis has been undertaken since Abercromby's Bronze Age Pottery [1912]. Such an analysis is outside the scope of the present work, constituting a thesis topic in itself. It is intended instead to present a short history of Food Vessel typology, with a summary of the major trends, followed by an analysis of the absolute chronology, and discussion of relative chronology and associations. It is hoped that this approach, although not an in depth study, will bring some order, both typologically and chronologically, to a presently chaotic system.

3.1 Typology

The history of Food Vessel typology is a particularly varied and confusing one, being a mixture of straight "shape-defined" groups and "regional type" groups. This system has persisted to the present, with the "Yorkshire vase" being the most consistently recognized Food Vessel group. The confusion has been compounded by the tendency for authors to call the same type by different names (for instance; type 2a, "British vase", group Y, Southern enlarged ridged, bipartite ridged-neck variant, and group F "hooped-bucket" vase all refer to the same type), or to call different types by the same name (ie. the "Irish vase"). This has led to the mish-mash which is the present system, with Food Vessels differentiated into six major groups, and twenty-one subtypes [see Burgess, 1980: 86-9]. Many of these groupings are very similar on form and/or decorative

grounds, but are distinguished by being "recognized regional types."

These regional types are well-entrenched in the literature; Thurnam, in the 1860s, recognized the "Yorkshire vase" and "Irish bowl," as his types Γ and δ . The classic work, and still the only comprehensive Food Vessel corpus, was Abercromby's chapter in Bronze Age Pottery. Abercromby divided Food Vessels into eleven groups, six of which were most common south of the Tweed, the other five being types of the north, and Ireland.

Abercromby defined his types as follows:

Type 1: grooved shoulder with stops. body low, truncated, and inverted cone. some stops perforated. neck curves inward slightly towards lip (cavetto).

Subtype 1a: with lip bevelled and internally ornamented. raising moulding on rim, occasionally a raised moulding above groove.

Subtype 1b: with two rows of grooves and stops.

Type 2: grooved shoulder, without stops. some vessels with raised moulding above/below the groove. lip bevelled and ornamented internally, raised moulding on rim.

Subtype 2a: third moulding below grooved shoulder.

Type 3: concave neck. lip bevelled, moulding at rim. some vessels with raised moulding at shoulder.

Type 4: biconical. two truncated cones; upper part much shorter. lip bevelled. some vessels with raised moulding at shoulder.

Subtype 4a: raised moulding at lip.

Subtype 4b: two grooves at shoulder.

Type 5: truncated cone.

Subtype 5a: with moulding at lip

Type 6: cylindrical. some vessels barrel-shaped. generally very poor workmanship.

Types 1-6 were found throughout the British Isles, although in "region 1" (counties south of Derbyshire-Staffordshire) they were only sparsely represented. In "region 3" (Scotland and Ireland), Abercromby recognized several new types, distinct to that region, which he designated types A to E.

Type A: small bowl shape, nearly round bottom. frequently ornate decoration. developments of this type include secondary grooves, and a "belt" around the centre.

Type B: a development from type A. almost identical to type 2.

Type C: bowl-shaped, flat-bottomed vessel, with three or more grooves.

Type D: ornate, globular body. short, everted lip. flat bottom.

Type E: biconical shape with everted neck.

Chronologically, Abercromby noted that for the vessels of subtype 1a (the "Yorkshire vase"), vessels with perforated stops should be older than those which were inperforate, judging those with inperforated lugs to be a skeuomorph of the former. On the basis of position within barrow deposits, he determined also that vessels of types 1a and 2, with the groove placed above the centre of the vessel, and with all the surface ornamented, came earlier in the series.

In an attempt to correlate the vessels from regions 2 and 3 (types 1-6 and A-E), Abercromby presented the following table, based on Food Vessels from region 3 [Abercromby, 1912: 131].

Table 7: Relative Age of Food Vessels in Region III

Years	Gen.	Bkr.	A	1, 1a	2	C	D	4a	6
90	3	-	2	1	4	-	-	-	-
120	4	-	4	1	1	-	-	-	-
150	5	-	3	3	6	-	1	-	1
180	6	"C"	2	4	3	2	-	-	-
210	7	-	-	2	2	2	-	-	-
240	8	-	-	1	3	1	1	-	-
270	9	-	-	-	1	-	-	-	-
300	10	"C"	-	1	1	1	-	-	-
330	11	-	-	-	-	-	-	-	-
360	12	-	-	1	1	-	-	-	2
390	13	-	-	1	-	-	-	5	8
420	14	-	-	-	-	-	-	-	-
450	15	-	-	-	-	-	-	-	-
480	16	-	-	-	-	-	-	-	-
510	17	-	-	1	-	-	-	-	-
540	18	-	-	-	-	-	1	-	9
570	19	-	-	-	-	-	1	-	-

Abercromby's typological scheme became the basis for comparison and elaboration, but from his initial recognition of distinct regional types, emphasis was on the recognition and description of local sequences and local styles. In 1936, Lily Chitty³⁷ divided Food Vessels into two distinct regional types: the "Yorkshire vase" (Abercromby type 1a) and the "Irish bowl" (Abercromby types A-D). This was incorporated by Childe [1940].

Childe, drawing on Abercromby, Chitty and Kitson-Clark³⁸, defined two main areas of Food Vessel development: north-east Britain, and Ireland and south-west Scotland. He saw Food Vessels as belonging in the main to one of three types:

³⁷Chitty, L. 1929, *Antiq. J.* 9: 137-9, and in Fox, C. 1947 *The Personality of Britain, especially pls. IV, V.*

³⁸Kitson-Clark, 1937, *Archaeol. J.* 94: 43-63.

1. "Bowl" form, with horizontal ribs, decorated with notches. This was the earliest type.
2. "British/Yorkshire" vase, Abercromby types 1, 1a, 2, 2a, and 3.
3. "Irish" bowl, Abercromby types A-E.

Chronologically, Childe felt that on the basis of barrow stratigraphy and artefact associations (battle axes, for example), Food Vessels must follow beakers in Wessex and Yorkshire, while particularly overlapping with them in Scotland. In terms of absolute chronology, Food Vessels began sometime during Montelius III, and continued, at least in Ireland, until Montelius VI.

period:	III	IV	V	VI
England	-----			
Scotland	-----	-----		
Ireland	-----	-----	-----	-----

The Fifties saw interest in the development and elaboration of regional schemes; Savory [1956] in Wales, Manby in the Peak District. Savory, characteristically, chose to redefine Abercromby's groups, labelling the new types A-G, with G Food Vessels being designated as "unclassified." He did recognize two groups with "Irish affinities" which became the basis for "Irish bowls" and "Irish vases." He was also the first to place "Encrusted Urns," a type defined by Fox in 1927³⁹ (Abercromby type 6), under the heading of "Enlarged Food Vessels," rather than as a separate, and distinctly later, form.

Manby, in what was the most complex typology until Colin Burgess in 1980, expanded Abercromby's types 1-6 into four different groups with twenty subtypes. His is the only

³⁹Fox, C. *Antiq. J.* 7 (1927): 115-33.

true "developmental" typology, showing the degeneration of types over time, through subtypes (i)-(iv).

Manby felt that he could see the "...development of Food Vessels directly from the B3 beaker...." [Manby, 1956: 6]. This type gave rise to the type 3(i) Food Vessel, which in turn developed into types 1a, 2 and their subtypes. The subtypes of type 3, (ii)-(iv), were influenced by Peterborough Ware, while type 4 (a consolidation of Abercromby's types 5, 5a, and 6) developed directly from the B3 beaker.

Manby's chronology began with type 3(i), and was contemporary with both phases of the "Wessex culture" and with A beakers.

Wessex I			3(i)		
	1a(i)	2(i)	3(ii)	4(i)	
Wessex II	1a(ii)	2(ii)	3(iii)	4(ii)	1c
	1a(iii)	2(iii)	3(iv)	4(iii)	
	1a(iv)	2(iv)	3(v)		

In 1958, ApSimon drew together the various Food Vessel schemes. He proposed a four group classification, all roughly contemporary, and contemporary with the "Wessex" bronze age. These groups, which form the basis of current typological schemes, were:

1. Yorkshire vase: as defined by Chitty, Kitson-Clark, and others, based on Abercromby subtype 1a. ApSimon placed it chronologically intermediary to beakers and Food Vessels.
2. Southern English Food Vessels: related to Yorkshire type, contemporary with "Wessex" culture." Two varieties exist;

- a. "Ridged" variety; based on Abercromby 2 and 2a, vessels with two or more horizontal ridges, with incised, stab, or cord decoration.
- b. "Bipartite" variety; Abercromby 3, 4, and 4a, with a sloping or concave neck, and elaborated cord decoration. Alternately, decoration may be restricted to the shoulder, rim and rim bevel, with incision and maggot motifs.
3. Irish vases: Abercromby type E. Irish vases are derived from "C" beaker inspiration.
4. Irish bowls: Abercromby A-D. "...irish bowls are directly derived from southern British 'A' beakers...." [ApSimon, 1958: 31].

These groups were adopted by Simpson [1968]. Rather than discuss the typology, Simpson concentrated on associations. His paper will be dealt with in more detail in that context; the chronological implications agreed with earlier writers, placing Food Vessels largely contemporary with developed beakers and "Wessex I."

Simpson did attempt to elaborate upon the Irish bowl sequence, however, dividing bowls into those with a smooth profile (types A and D) and those with ridges (types B and C). These groups were justifiable on the basis of differential use of motifs: the ridged bowls preferred repeating horizontal patterns, particularly chevrons, while the smooth favoured vertical grooved ornament. From this a developmental series could be built up, based first on vessels with lozenge and chevron patterns, then with vessels exhibiting multiplication of these patterns to produce an "all over ornamented" effect, the lozenges becoming separate panels, and finally these panels becoming attenuated to produce vertical grooves.

Clarke discussed the origins of Food Vessels in volume 1 of Beaker Pottery. Food Vessels were, he concluded, the

result of the superimposition of regional beaker groups on regional variation of Later Neolithic pottery. Yorkshire vases and Irish bowls developed under the influence of S₂-S₄ beakers, while Irish vases were the result of N₃-N₄ inspiration. Beaker contributions were primarily decorative: cord decoration, herringbone motifs, and motifs of Clarke's numbers 22-27, while shapes were derived from Neolithic precursors.

This theme was incorporated by Burgess, in his chapter on "The Bronze Age" for British Prehistory. "...the various ceramic forms lumped together under the 'Food Vessel' label...were developed from Neolithic pottery traditions under beaker influence...." [Burgess, 1974: 182]. Burgess recognized that the division of "Irish" forms into bowls and vases was in fact a basic division among Food Vessels, with vase forms being more common in England, bowl forms more common in Ireland, and Scotland having a mixture of both.

Burgess divided the vase group into bipartite and tripartite forms, with a number of subforms:

A. Vases.

1. Bipartite.

- a) basic (Abercromby 3, 4, and 4a)
- b) southern ridged (3, 4, 4a)
- c) Yorkshire (1, 1a)
- d) ridged-neck variants (2)
- e) Irish-Scottish (E)

2. Tripartite.

- a) northern tripartite (2)
- b) southern ridged (2)
- c) Irish (C)

These subforms overlapped somewhat, and distinguishing them could sometimes be problematical. For instance,

Burgess differentiated between the ridged bucket shape vases (tripartite) and the ridged-neck bipartite vases by the position of the lowest ridge, which was below half-height on the vessels of the former category.

The bowl forms were somewhat simpler: these were divided into Irish-Scottish and British versions, each with subtypes.

B. Bowls:

1. Irish-Scottish.

- a) tripartite (Abercromby type B)
- b) waisted (type A)
- c) simple (type A)
- d) ridged variants (type C)

2. British.

- a) globular (type 5, 5a)
- b) bucket-shaped (type 6)

Burgess made no attempt to distinguish any internal chronology, and certainly must have felt that the available radiocarbon dates did not warrant speculation. He did question, in the face of radiocarbon contemporaneity, the consistent stratigraphic sequence of beaker, Food Vessel, Collared Urn, in barrow burials, and attributed this to social distinctions.

He also repeated the distinction of burial type, with Food Vessel inhumations following beaker inhumations in the east, and a correspondent increase in cremations to the west, with the "fall-off" of beaker densities.

It is an interesting aside here, that an analysis of beaker cremation burials [after Clarke, 1970: 453-4], shows that two-thirds occur in Eastern counties (67% east to 33%

west). They split evenly between North and South (53% north to 47% south). An analysis by splitting Britain into quadrants (NE, NW, SE, SW) finds 42% in the North-east, followed by 25% South-east, 22% in the North-west, and only 11% in the South-west. The sample size is small, but for what is supposedly a northern and western phenomenon, it is odd that the smallest percentage of cremations are in the North and West.

A further oddity appears when the beaker types are examined: the greatest number of cremations occur with step 4 beakers, followed by steps 1-2, and step 3 (17%), then step 6 (14%), step 5 (11%), and step 7 (8%). If the early types (steps 1-4) are separated from the later (steps 5-7), then two-thirds of cremations occur with "early" beakers. It seems, among this sample at least, that the traditional chronology of inhumation-cremation does not hold. Food Vessel chronology will be discussed later in detail, but it is interesting to note that the radiocarbon dates for step 4 beakers coincide with the earliest appearance of Food Vessels, and that the "fall-off" of beaker cremations in the later steps coincides with the rise of the Food Vessel tradition.

Burgess did not discuss enlarged Food Vessels, or encrusted urns, which, up to this point were generally considered to represent separate and only slightly related traditions. Fox had described "encrusted" urns in detail in 1927, recognizing them to belong to Abercromby type 6. He placed them at a chronologically later stage however, as a development out of the Food Vessel tradition.

ApSimon, in his paper "Biconical urns outside Wessex," reiterated the distinction between Food Vessels and Food Vessel urns, illustrating his arguments with a series of

size comparisons. This distinction was challenged by Waddell in 1976, who incorporated enlarged Food Vessels and encrusted urns into the Food Vessel tradition in Ireland.

Waddell felt that there were four major traditions to be seen in Irish bronze age pottery: bowl, vase, collared urn and cordoned urn. "...the bowl and vase traditions, in part, appear to reflect...the interaction of beaker and native custom...." [Waddell, 1976: 285].

Each of these could be subdivided into a series of types and subtypes. The bowl tradition divided into four types which were almost identical to Burgess' Irish-Scottish bowl series. Food Vessel bowls came from cist or pit graves, and were divided evenly between inhumation and cremation burial rites.

The vase tradition could be subdivided into vases, vessels c. 16cm in height or less, vase urns (enlarged Food Vessels, c. 20cm or larger), and encrusted urns, vase urns with encrusted decoration. Vases could be divided into three types, type 1 corresponding to Burgess' Irish-Scottish vase, type 2, paralleled by the Yorkshire vase, and type 3, a "globular vase" form. The majority of these vases came from cremation burials in cists. "...the rite of short-cist burial would suggest a northern beaker influence...." [Waddell, 1976: 290].

The vase urn and encrusted urn groups were each subdivided into three types:

A. Vase Urns:

1. type 1: majority of vessels, angular profile, everted or nearly vertical neck, incised ornament.
2. type 2: with two horizontal ribs, similar to Burgess' northern tripartite.

3. type 3: rounded, slack profile, slightly everted rim, incised ornament with herringbone decoration.
- B. Encrusted Urns:
1. type 1: sharp shoulder, vertical or nearly vertical neck.
 2. type 2: two or more horizontal ribs, internally bevelled rims.
 3. type 3: slack, round-shouldered profile, with three subtypes:
 - a) type 3a: rim slightly everted and internally bevelled, applied and incised ornament, applied ornament confined to upper half of vessel.
 - b) type 3b: at least one horizontal rib, internally bevelled rim, applied and incised decoration covers entire vessel.
 - c) type 3c: distinct neck above shoulder, preference for applied oblique strips of decoration.

Vase urns and encrusted urns usually accompanied cremations, and were placed in a cist or pit in an inverted position.

Cowie [1978] also emphasised the connection between the enlarged Food Vessel or vase urn and the Food Vessel tradition. "...basic range of shapes...in terms of Abercromby's classification 'enlarged' versions of types 1-3 are represented, the majority falling into the type two category...." [Cowie, 1978: 14] Cowie noted that there were regional distinctions in enlarged Food Vessel types with "...the largest Food Vessel urns...to be found in the north-east of Scotland, where all can be seen to bear relief decoration...." [Cowie, 1978: 24].

Gibson [1978] further amalgamated these three groups, stating that Food Vessels as a whole could be divided into three types: bipartite, tripartite, and bowl. Food Vessel urns represented a bipartite form, and could be subdivided into categories of simple bipartite, bipartite with

groove(s), with groove(s) and stops, and with encrusted decoration.

When Burgess reviewed Food Vessel typology again in 1980, he included these categories, under the titles of "enlarged Food Vessels" and "enlarged Food Vessels with encrusted decoration," reflecting most closely the types put forward by Waddell. He preserved most of his 1974 groups, but presented them in a more orderly fashion. He also recognized the need for Waddell's "globular vase," which appeared as the "Irish-Scottish rounded vase."

Burgess' scheme, with its four major groupings, four subgroupings, and twenty-one subtypes represented the largest Food Vessel classification scheme put forward. His categories were:

A. Vases:

1. Bipartite Form.

- a) basic
- b) Yorkshire
- c) Irish-Scottish
- d) Southern
- e) ridged-neck variants

2. Ridged, Bucket-shaped Vases (tripartite).

- f) Northern tripartite
- g) Southern
- h) Irish-Scottish

B. Bowls:

3. Rounded Vases, Bowls and Buckets.

- i) Irish-Scottish rounded vase
- j) bucket shaped
- k) globular bowls

4. Irish-Scottish Bowls.

- l) simple

- m) waisted
- n) tripartite
- o) ridged variants

- C. Enlarged Food Vessels: groups 1-3, based on Waddell's types 1-3.
- D. Enlarged Food Vessels with Encrusted Decoration: based on Waddell's types 1, 2, and 3a.

Burgess reiterated the development of Food Vessels out of the Peterborough tradition, along with collared urns, placing them chronologically contemporary with the Bush Barrow burials, which he equated with step 7 beakers. He linked Food Vessel inhumation burial to the importance of inhumation as a burial rite in "pre-beaker times which determined the popularity of the beaker tradition, and then of Food Vessel burial...." [Burgess, 1980: 82].

Most recently, Gibson has produced a typological guide, which is a mixture of his work from 1978 and Burgess' scheme⁴⁰. This included the division of Food Vessels into bowl and vase types, and the placement of enlarged Food Vessels within the Food Vessel mainstream, with encrustation reduced to a decorative technique of the enlarged Food Vessel class. Unfortunately, the integration of the two schemes has not been carefully thought out in all cases, and the presentation, in what is supposed to represent a "field guide to classification" sometimes leaves one in doubt as to the distinctions between the various subgroups.

Since ApSimon's paper of 1958, the most consistent features of Food Vessel typology have been:

1. A recognition of Food Vessels and enlarged vessels as two parts of the same tradition.

⁴⁰Gibson, A.M. Neolithic and Bronze Age Pottery, *Shire Archaeology*, 1986.

2. A recognition of encrusted urns as a decorative feature of enlarged Food Vessels.
3. A distinction between vase and bowl types.
4. A distinction between bipartite and tripartite vases.
5. A division of bowls into four categories: simple, waisted, tripartite, and ridged.
6. A recognition of certain "regional" forms, the most notable of which is the Yorkshire vase.

3.2 Radiocarbon Chronology

Other than Manby's paper, in 1957, no attempt has been made to provide any internal chronology for Food Vessels. Until very recently Food Vessel radiocarbon dates have been rare, and there are still only a small number, in comparison to other pottery types. Because of this, it will only be possible to consider "trends" which may be indicated by current radiocarbon evidence, and to make suggestions, which may be confirmed or refuted as a larger body of evidence is accumulated.

The currently available radiocarbon dates come from sites throughout the British Isles, although the north and west are more heavily represented [§appendix 4.3, pp. 449]. Almost all are from burial or ritual sites; occupations with Food Vessels are unusual. Of the four occupation sites with dated Food Vessel deposits, two are from Ireland (Ballynagilly and Coney Island), one from Islay (Ardnave). The fourth, from Spong Hill, Norfolk, is unpublished, and the exact nature of the deposit cannot yet be determined.

The dates range from 1860 b.c. (BM 1532) to 1055 b.c. (GU 1379), excluding the date from Dalgety, Fife. This date, 2746 \pm 85 b.c. (SRR 700), was made on a very small sample of

bone, and the accuracy of the date may be questioned⁴¹. The majority of the dates fall in a very even spread with no visible gaps; all dates overlap within the 68% (1 σ) certainty range [fig. 29, pp. 543].

When the boxplot ranges are calculated for Food Vessels as a whole, they suggest a similarly narrow timespan.

Upper Inner Fence	1875
Upper Hinge	1645
Middle Hinge	1525
Lower Hinge	1435
Lower Inner Fence	1210

This span is roughly equivalent to that for steps 5, 6 and 7 of beakers.

Because of the relatively "tight" date span, and the small number of dates, the possibility of finding chronologically distinct groupings, similar to those for beakers, is likely to be small, and preliminary analysis suggests that all typological groupings yet presented are chronologically contemporary. Taking Burgess four basic typological groups as a basis for analysis;

1. Bipartite Vases.

- 1.1. Basic.
- 1.2. Yorkshire.
- 1.3. Irish-Scottish.
- 1.4. Southern.
- 1.5. Ridged-neck variants.

⁴¹Watkins, T. "The excavation of an Early Bronze Age cemetery at Barns Farm, Dalgety, Fife," *Proc. Soc. Antiq. Scot.* 122 (1982): 48-141.

2. Ridged, Bucket-shaped Vases.
 - 2.1. Northern tripartite.
 - 2.2. Southern.
 - 2.3. Irish-Scottish.
3. Rounded Vases, Bowls and Buckets.
 - 3.1. Irish-Scottish rounded vases.
 - 3.2. Bucket-shaped.
 - 3.3. Globular bowls.
4. Irish-Scottish Bowls.
 - 4.1. Simple.
 - 4.2. Waisted.
 - 4.3. Tripartite.
 - 4.4. Ridged variants.

Under this scheme, enlarged Food Vessels, and encrusted urns are to be considered under the Food Vessel categories, although enlarged vessels are marked with an (E), to distinguish them (there are no dates here for vessels with encrusted decoration)⁴². There are several points to note, before further analysis is undertaken. First, type 1.1 (basic bipartite vase) is by far the most common representing a third of the sample. Over half of these are (E), enlarged vessels, and all but one of the enlarged vessels are type 1.1. Second, there are no obvious groupings of types toward one end of the date range or another. This is particularly interesting for the enlarged vessels, indicating that there is at present no evidence to suggest that the enlarged type were anything other than a normal component of the Food Vessel tradition (as opposed to a secondary development).

Looking at the list more carefully, a possible division can be seen between types 2 and 4. Type 2 dates fall in the "earlier half" of the chronological range, c. 1860-1510

⁴²§see appendix 4.3, pp. 449.

b.c., while type 4 dates fall in the "latter half," c. 1485-1210 b.c. [fig. 30, pp. 544].

Burgess' typology has an advantage over other schemes, in that it does allow distinct "regional" types to be grouped together, for analysis of possible regional distinctions. The regional types are:

1. Irish-Scottish (Abercromby Region III):
 - a. Type 4; bowls.
 - b. Type 3.1; rounded vase.
 - c. Type 2.3; ridged, bucket-shaped vase.
 - d. Type 1.3; bipartite vase.
2. Northern English (Abercromby Region II):
 - a. Type 2.1; northern tripartite vase.
 - b. Type 1.2; yorkshire vase.
3. Southern English (Abercromby Region I):
 - a. Type 2.2; ridged, bucket-shaped vase.
 - b. Type 1.4; bipartite vase.

There is only one "southern" vessel, the enlarged type 2.2 from Earl's Farm Down. There are eight "northern" types, and nine "Irish-Scottish" types. Plotting these as single dates shows them to be contemporary.

The problem with Food Vessel "regional types" is precisely that encountered in Clarke's regional beaker types: regional types do not always occur in the region they are assigned to. The "Yorkshire vase" is a good example of this phenomenon; Yorkshire vases come from Islay, Cardiganshire, Lincolnshire, Derbyshire, and Northumbria. If the vessels are redivided by location rather than type, a slightly different, and potentially more interesting pattern appears. The regional groupings are based on the Abercromby divisions; region I being England south of Derbyshire-Staffordshire, region II, northern England, and

region III, Ireland and Scotland. Although the majority of the dates belong to region III, there are enough dates in each group to allow for boxplot analysis. When hinges are plotted, a shift from "early" to "late" can be detected, from region I to III [fig. 31, pp. 544]. The shift is slight, but consistent, and could be used to suggest that Food Vessels date later as one moves north.

This raises several questions. Could this shift be associated with a particular context?. The most obvious contexts are site type and burial rite. Burial rites have been discussed earlier, in connection with beakers. If Food Vessel cremation dates are plotted versus inhumations, a surprise occurs. While the inner hinges do overlap, the inhumations date later than the cremations, with the middle hinge mark for the inhumations equal to the bottom of the lower hinge for the cremations [fig. 32, pp. 545].

Examining the cremation and inhumation burials by region, it can be seen that most of the inhumations come from region III (7/10), two from region II, and one from region I. The cremations come from regions I and II, (8/15, 5/15), with two from region III.

There are no particular types associated with either inhumations or cremations, with one exception. The enlarged Food Vessels (E) are all, with the exception of Earl's Farm Down, associated with cremations. Earl's Farm is unique in another way, it is the only enlarged vessel which is not type 1.1. The enlarged vessels divided roughly equally by region, three sites in region I, two in region III, one in region II.

By site context, dated inhumations are either from short cists or round barrows. Cremations are primarily from round

barrows. Examining the dates from round barrows and short cists shows them to be roughly contemporary, with the short cists continuing over a longer period of time (c. 1700-1000 b.c. as opposed to c. 1800-1350 b.c.). The hinge ranges are:

	Short Cist	Round Barrow
UIF	2746	1800
UH	1658	1620
MH	1475	1560
LH	1295	1475
LIF	1055	1350

The situation appears then to be one in which the later dating of Food Vessels in the north may be linked to the later dating of their burial context; inhumation burial as opposed to cremation burial.

Taking the point made earlier about cremations associated with beaker pottery, this offers an interesting possible sequence. The greatest number of cremations occurred with step four beakers, and slackened off in steps 5-7. If one plots the hinges for step 4-7 beakers against Food Vessel cremations, the lower hinge dates for beakers 4-7 coincide with the upper hinge dates for Food Vessels. Further, taking Food Vessel cremations against Collared Urns, the lower hinge dates for Food Vessel cremations coincides with the upper hinge for Collared Urns [fig. 33, pp. 545].

It would be possible to suggest, on the basis of these figures, that in the south, beakers with cremations may have been superseded by Food Vessels with cremations, during the beaker step 5-6 period. The Food Vessels are in turn superseded by Collared Urns, appearing during the step 7 beaker period.

The lack of Collared Urns in the north, proportional to Food Vessels, might account for a later continuation of Food Vessels in the northern region generally, although it would not explain why inhumations date later than cremations. On the basis of such a small sample, the writer would not wish to speculate further.

Examining the position of Food Vessels as a whole in relation to the other Bronze Age pottery types, they appear to be in an intermediary position, between step 4-6 beakers and step 7 beakers and Collared Urns [see chp 4, pp. , "Bronze Age chronology"]. It should be noted that Food Vessels precede the appearance of Step 7 beakers. This puts a slightly different light on the problem of the step 7 beaker/Food Vessel, a "hybrid" vessel which is frequently found in the north, particularly the northeast. It seems clear that these vessels must be regarded as beakers influenced by Food Vessels, and not the other way around.

3.3 Associations.

The above comments lead nicely into a discussion of artefact associations between the various Bronze Age pottery groups. It is not proposed to discuss Food Vessel associations, other than in this context. Currently, the most complete discussion of Food Vessel associations has been done by Simpson [1968] and the writer is not in a position to add significantly to it.

Richard Bradley [1984] attempted an analysis of the different Neolithic ceramic styles and the associations with complex artefacts. He selected the Grimston/Lyles Hills series, Towthorpe and Mildenhall wares, and the Peterborough and Grooved Ware traditions, because "...it seems fairly clear that although these styles developed in sequence, they

remained in use together...." [Bradley, 1984: 48]. Each style appears to have its own range of associations and at the same time to share some of these associations with the other traditions.

Bradley isolated a group of "special items" deposited during the Late Neolithic, primarily in burials and hoards, as classes "...of deposit which lack a mundane explanation...." [Bradley, 1984: 48]. Excluding those items which occur on most Neolithic sites (and in fact, on most prehistoric sites): flakes, cores, blades and scrapers, he selected twenty-four items which could be used as "...a yardstick against which to measure the apparent richness of the different ceramic assemblages...." [Bradley, 1984: 49, table 3.4]. His results are tabled below:

Table 8: The overlap between different Later Neolithic ceramic styles and their associations with complex artefacts.

	Grimston/ Lyles Hill	Towthorpe & Mildenhall	Peter- borough	Grooved Ware
Grimston/ Lyles Hill
Towthorpe & Mildenhall	1	.	.	.
Peterborough	---	4	.	.
Grooved Ware	---	1	5	.

Bradley suggested that these results could be viewed either "...as evidence of a chronological sequence, or they may indicate a hierarchy of increasing complexity...." [Bradley, 1984: 49]. A similar analysis can be undertaken for the Bronze Age pottery types. The basic problem is the same; a series of sequential but largely overlapping traditions, which share many of the same artefact types, yet seem distinct. The traditions concerned: beakers, Food

Vessels, Collared Urns, and the Wessex graves, are largely or entirely burial traditions, and a series of forty-four artefact types can be distinguished which are common to two or more traditions. These items, although some may occasionally occur in occupation contexts, are primarily associated with "ritual" complexes, mainly burials.

Of these forty-four, six types are found with all four traditions: the small, flat tanged knife of copper/bronze, double-pointed, square sectioned bronze awls, bone pins and awls, antler tines, and jet/shale disc beads. All types are listed in table 23 [§pp. 497], and their occurrence with a ceramic type indicated by an (X).

The results are tabled below, excluding the six types which represent the maximum association between groups. Beakers have been divided in "early" (steps 1-3) and "late" (steps 4-7) types because earlier studies indicated that there may be differences in artefact associations between these rough groupings.

Table 9: Summary of Bronze Age Artefact Associations

	BKR 1-3	BKR 4-7	FV	CU	WSX
Beaker, Steps 1-3	-				
Beaker, Steps 4-7	6	-			
Food Vessel	5	15	-		
Collared Urn	8	16	18	-	
Wessex	2	5	8	18	-

(n=44, minimum n=6)

Considering this table first as an indication of chronological sequence, one would expect a series of overlapping traditions beginning with step 1-3 beakers, following with steps 4-7, Food Vessels, Collared Urns, and

then Wessex burials--an exact reflection of the radiocarbon evidence to date.

As a table of increasing complexity, it would seem that the Wessex grave tradition was "borrowing" from the traditions with which it was contemporary, particularly the Collared Urn tradition.

To conclude, one can quickly summarise the above discussion on chronology and associations:

1. If one considers the radiocarbon dates associated with Food Vessel types as defined by Burgess, then it would appear that the type 1.1 (basic bipartite) continues throughout the lifespan of the Food Vessel tradition.
2. The typological inclusion of enlarged vessels within the mainstream of Food Vessel tradition is confirmed by the radiocarbon dates. It is noted that enlarged vessels which have been dated are primarily of type 1.1.
3. It is noted that while the four major groupings in Burgess' typology: bipartite vases, tripartite vases, buckets and bowls, and Irish-Scottish bowls are largely contemporary, there may be a division between the ranges of group 2 (tripartite vases) and group 4 (Irish-Scottish vases). On the basis of existing radiocarbon dates, it would appear that group 2 dates fall within the early end of the date range for the tradition (c. 1800-1450 b.c.) while group 4 dates fall within the later end (c. 1550-1150 b.c.).
4. Considering the regional distribution of dates, it is noted that while there seems to be little distinction between regional types (although see point 3) there may be a distinction between regions. It is suggested that it is possible to see Food Vessels appearing later in region II than region I, and later in region III than in region II, and it is hoped that further radiocarbon evidence will either confirm or deny this.
5. It is noted that when examining radiocarbon dates associated with burial type, the Food Vessel cremations appear to pre-date the inhumations.

6. Linking burial types to region, it is noted that dated inhumations occur primarily in the north, while cremations occur in the south. Site type does not seem to be a factor.
7. On the basis of burial types and radiocarbon evidence, it is tentatively suggested that for cremation burials, at least, the old sequence of beaker-Food Vessel-Collared Urn, can be seen to have validity.
8. In considering the relationship of Food Vessels to other Bronze Age pottery types, it is noted that Food Vessels precede the appearance of step 7 beakers, on present radiocarbon evidence. It is suggested that on this evidence, Food Vessels must be seen as influencing the development of step 7 beaker/Food Vessel hybrids, and not vice versa.
9. Finally, in analysing the artefacts associated with the various Bronze Age pottery types, it is noted that the sequence of overlapping supports the radiocarbon chronology.

Chapter 4: Grooved Ware

In a situation not dissimilar to that of Food Vessels, Grooved Ware, although it has been identified for some time, has not been adequately catalogued or studied. No recent corpus of Grooved Ware exists for the whole of the British Isles (the latest being Longworth, 1971), although some regional catalogues have been produced⁴³. Again, it is not within the scope of this work to consider the Grooved Ware "culture" in depth, and only a brief outline of the typology, distribution and chronology is given here. Of all early prehistoric pottery, Grooved Ware, or the "Rinyo-Clacton culture" is perhaps in the greatest need of an overhaul (and the least attractive prospect). A concise summary of the current state of knowledge is given by Gibson in *Neolithic and Bronze Age Pottery*⁴⁴.

Grooved Ware was first identified by Hazeldine Warren and Piggott in 1936, as a result of excavations at Lion Point, on the Essex Coast.

...the typical form is that of a flower pot or bucket-shaped vessel...flat bases...rims of the vessels are invariably upright...frequently thickened in section by the addition of plastic ornament... [Warren, 1936: 191].

Decoration on these sherds was profuse, executed in either relief (fingernail impressions, applied cordons) or intaglio (shallow grooves) and marked by an absence of

⁴³for instance Manby, T.G. *Grooved Ware Sites in the North of England*, *British Archaeol. Reports* 9, 1974.

⁴⁴Gibson, A. *Neolithic and Bronze Age Pottery*, *Shire Archaeology*, 1986, 24-27.

twisted cord⁴⁵. The essential features of the decoration were the groove technique, shallow punchmarks, impressed circles, bosses, fingernail impressions, applied cordons, ladder patterns, and internal rim ornament [op. cit., pp. 196]. It was suggested that Grooved Ware was contemporary with "Neolithic B" pottery [op. cit., pp. 197].

Piggott included a discussion of Grooved Ware in "Neolithic Cultures," and established the term "Rinyo-Clacton culture" to describe this pottery style and its artefact associations. Grooved Ware was a pottery type

...distinguished by its lack of cord ornament or of pit-comb techniques, and is therefore clearly separated from the Peterborough Ware group...associated stone types include many characteristic of the Secondary Neolithic light industries in flint... [Piggott, 1954: 322].

In the north, the "Rinyo" part of the culture, the Skara Brae/Rinyo pottery sequence could be divided into three classes:

1. class A; relief patterns only
2. class B; incised and relief patterns
3. class C; incised patterns

At Rinyo, classes B and C were contemporary, and predated class A, sherds of which had been found with a "Bell Beaker" [op. cit., pp. 328]. Associated artefacts included stone bowls and cups, flint axes, edge-polished knives, fabricators, scrapers, triangular arrowheads, stone axes/adzes, handled and spiked tools, perforated mace-heads, and knobbed and spiked objects (of an otherwise unidentified nature), bone adzes, chisels, perforated antler maceheads, bone points and awls, scapula shovels, bone pins, beads, and

⁴⁵although cord decoration was later recognized elsewhere, for instance Grimes Graves.

pendants. These items comprised what was later referred to as "Secondary Neolithic" associations.

In the south, finds of Grooved Ware, in contrast to the northern domestic sites, were drawn largely from pits, henge monuments (in primary positions) and other "ritual" sites. Pottery comparable with Rinyo I (classes B and C) wares also included plastic ornament on the inside of the rim, as a distinct southern trait. The Rinyo II equivalent (class A) was complicated by the use of fingernail/fingerpinch rustication.

...southern tradition was a mixture of the Rinyo I style with local and contemporary rusticated tradition within the Arminghall-Holdenhurst-Somersham group... [op. cit., pp. 341].

Associated artefacts included *petit-tranchet* arrowheads, flint axes, *tranchet* axes, greenstone axes, leaf arrowheads, serrated flakes, scrapers, fabricators, flint discs, stone balls, antler picks, scapula shovels and bone points.

On the question of origins, Piggott suggested that the patterns on the pottery imitated or reflected "...the repertory of magic signs and symbols incised or pecked on the megalithic tombs of the Boyne culture..." [op. cit., pp. 233-4]. This pottery tradition survived into the late bronze age, through its lineal descendant, the Deverel-Rimbury Ware tradition.

In her thesis on the ceramics of South-eastern England, Isobel Smith⁴⁶ first defined the southern styles; Clacton, Woodlands, and Woodhenge (later Durrington).

⁴⁶Smith, I.F. 1956.

The Clacton style, based on the Clacton type-site, was differentiated by external decoration consisting mainly of grooving and punctuation, the patterns normally being in horizontal bands, with concentric lozenges, multiple chevrons, and series of triangles being favoured designs. Vessels were elaborately decorated, often in three ornamental bands, although external relief ornament was rare. Internally ornament consisted of notches horizontal cordons, and rim bevels.

The Woodlands style was distinguished by the small size of the vessels, often thin-walled, and by the placement of small, horizontally perforated lugs, and pellets or thin rolls of clay straddling the rim. External decoration included low cordons which were sometimes incised (which Smith considered to be a skeuomorph of knotted network).

The Woodhenge style, based on the material from the henge and timber circle at Woodhenge, was distinguished by fingernail impressions and rustication, simple rounded or flattened rims without internal bevels, and deep vertical collars. Decoration was often arranged in panels, with circular elements in relief. Internal decoration was rare.

Smith noted that a "...feature peculiar to the Rinyo-Clacton culture is the large quantity and variety of objects normally found with the pottery..." [Smith, 1965: 206-7]. Her artefact associations replicated Piggott's list. For "modes of occurrence" pits were the most frequent context. Sepulchral sites, either cremation deposits or "significant relationship" to a round barrow, accounted for 15% of the contexts.

In the Durrington Walls report⁴⁷, Longworth "...confirmed Smith's triple division of Grooved Ware in southern Britain..." Although he renamed the Woodhenge style after the Durrington Walls site, his lists of style traits are essentially a reiteration of Smith and Piggott [see Wainwright, 1971: 237-43 for a complete listing].

These styles did not, however, possess distinct distributions. "...with the exception of the Rinyo style, none of the Grooved Ware substyles show any marked territorial separation..." [Wainwright, 1971: 243]. On the question of origins, Longworth stated that Grooved Ware represented a "native product" with style innovations drawing heavily on skeuomorphs from basketry (as argued by Smith and Piggott) and with further influences from Boyne art.

...it seems clear enough that the four sub-styles are contemporary for much of their lives and some if not all have their origins around or before 2000 B.C. Their lifespan appears to make them contemporary with almost the entire range of Beaker pottery and most of the late Peterborough tradition... [Wainwright, 1971: 248].

These comments were intended as a reply to David Clarke, who had suggested in Beaker Pottery that a number of the decorative elements in the Grooved Ware tradition of the south were borrowed from beakers, including fingerpinch rustication, panels, filled chevrons, lozenges and triangles.

⁴⁷Wainwright, G.J. & Longworth, I.H. "The Rinyo-Clacton Culture reconsidered," in Wainwright, G.J. Durrington Walls Excavations 1966-68, 1971, pp. 235-68.

...it now seems highly probable that Grooved Ware in the southeast might be derived from a regional specialization of the Fengate tradition, under strong developed southern Beaker influence... [Clarke, 1970: 269].

Clarke went on to suggest that there was no relationship between the Grooved Ware of the Rinyo tradition and the southern styles, other than that of gross morphology.

...although the Scottish pottery shares grooved and applied cordon decoration in rectilinear geometric patterns, these are clearly related...to the motifs on the preceding local 'Unstan' variety of Beacharra ware and to geometric Boyne art...the Rinyo-Clacton 'culture' is a fiction composed of two independent neolithic traditions linked only by beaker influence... [ibid.]

Longworth disposed of the former argument on two grounds; first, that the available radiocarbon dates indicated that Grooved Ware in the south was contemporary with, if not earlier than, the earliest beakers in that area. Second, that many of the "beaker" motifs were in fact common within pre-existing artistic traditions. On the question of the unity of tradition between north and south he is less convincing, and can only contend that the Rinyo style has more in common with southern Grooved Ware than with beakers.

Under modes of occurrence, Longworth noted that 54% of contexts were domestic, and another 33% were "stray finds." Of the domestic contexts, 62% were from pits, "...which were presumably for the disposal of domestic rubbish..." [Wainwright, 1971: 249], and 25% from the mounds and ditches of burial mounds. Of the remaining 'non-domestic' contexts, 8% were ritual sites, henge monuments and timber circles being the most common, including Stonehenge, Durrington Walls, Woodhenge, Avebury, Marden and Maumbury Rings, which

led Longworth to suggest that Grooved Ware may have had a special role in ceremonies conducted at these sites [*ibid.*]

In Clarke's analysis of the Grooved Ware tradition [Clarke, 1970: 268-70], he proposed that of the three southern styles, the Clacton style was the earliest and most widespread, with the Woodlands and Woodhenge styles, with their plastic relief and rustication, as later regional variants. The tradition was partly contemporary with Mortlake, Fengate and developed southern Beaker.

...this late dating is confirmed by the survival of Grooved Ware techniques on Aldbourne cups, Grape cups and Incense cups, and by the integration of the plastic cordoned and bucket-shaped vessels into the British Middle Bronze Age... [Clarke, 1970: 268].

The Late and Final Southern beakers, with grooved or incised decorations, represented the convergence of these two groups. In the north, Grooved Ware of Rinyo I was earlier than, or contemporary with, the earliest beaker groups, while Rinyo II style wares were contemporary with the Northern British (1-3) beaker sequence. This put Scottish Grooved Ware "...not only 250 miles away but possibly 200 or 300 years earlier..." [Clarke, 1970: 269].

Clarke's arguments were not taken up, however, and recent discussions have tended to reiterate Longworth's conclusions, in perhaps a slightly more concise form [see Burgess, 1980: 39-41, Gibson, 1986: 24-27]. A paper by Richards and Thomas in "Neolithic Studies"⁴⁸ suggests a

⁴⁸Richards, C. and Thomas, J. "Ritual activity and structured deposition in Later Neolithic Wessex," in Bradley, R. and Gardiner, J. *Neolithic Studies, British Archaeol. Reports* 133, 1984, 189-218.

different approach, however, which may produce more useful analysis.

Richards and Thomas begin by noting that Grooved Ware may belong to the category of items called "weapons of exclusion" by Bradley [Bradley, 1982: 36]. The circulation of these items is controlled by the ruling group, as a means of maintaining the existing social hierarchy. The designs on the vessels may themselves convey particular meanings and the "...variation in Grooved Ware decoration can be attributed to the transference of particular motifs and design elements from one region to another..." [Richards, 1984: 193].

Richards and Thomas then attempted to devise a classificatory scheme to accomodate these design elements; they proposed a hierarchical design structure, where "structure" referred to "...the basic distinctions between plain areas and decoration and between bounded and unbounded designs..." [Richards, 1984: 195]. The scheme, illustrated in fig. 12.1 [pp. 194], incorporated the following levels;

1. undecorated;
2. decorated;
3. bounded and undecorated;
4. bounded and decorated;
5. bounded and undecorated with the boundaries decorated;
6. bounded and decorated with the boundaries decorated.

Within this system, the choice of individual motifs could vary; "...the oppositions between decorated/undecorated and bounded/unbounded areas are of fundamental importance..." [*ibid.*] Variations are synchronic, however, rather than chronological, and Richards and Thomas stress that they are dealing with synchronic phenomena.

Using this scheme to analyse the Grooved Ware sherds from Durrington Walls, they conclude that "...statistically significant variation was observed for Grooved Ware design stages (fig. 3)..." [Richards, 1984: 197]. Distinct variation in decoration was noted between the Northern and Southern circles, with levels 1 and 3 dominant at the Northern Circle, 4 and 6 at the Southern Circle, and particularly the Platform [op. cit., fig. 12.3, pp. 198]. This patterning in the deposition of decorated material is of particular significance in the study of beaker deposition [see chps. 6 & 7], where a similar phenomenon occurs, on sites such as Mount Pleasant and Windmill Hill.

On a broader view, analysis of the growing body of radiocarbon dates for Grooved Ware [see appendix 4.4, pp. 451 & fig. 34, pp. 546] indicates that the chronological distinction between "Southern" and "Scottish" Grooved Ware is greater than previously suspected. Kurskal-Wallis analysis for these two groups suggests that there is a 99.9% probability of their being distinct, while boxplots indicate that they do not overlap at all in their inner hinge ranges:

Group:	No:	Ave. Rank:	Median:	Z value:
South	53	33.0	1950	- 5.21
North	35	62.0	2190	+ 5.21
Overall	88	44.5		

$H = 27.19$, for 1 degree freedom, $H > 0.001$; 99.9% probability.

Boxplots of Northern and Southern Grooved Ware suggest the following ranges [see also fig. 35, pp. 547]:

Group:	LIF	LH	MH	UH	UIF
North	1820	2065	2190	2380	2500
South	1515	1800	1950	2025	2365

Considering the very great differences between the two traditions, particularly in use of decorative elements, it seems likely that Clarke's proposal of two independent Neolithic traditions may need to be revived. It is interesting to note, in this context, that radiocarbon dates for Grooved Ware deposits outside the Wessex area, and particularly in the north of England, are significantly later than those in the far south or far north.

The date ranges for Grooved Ware also mean that the derivation of certain motifs from the beaker tradition (particularly the middle and later stages) is unlikely. Again, analysis has suggested that the inner hinges for "early" beakers (steps 1-3) and Southern Grooved Ware are contemporary:

Group:	LH	MH	UH
Grooved Ware	1800	1950	2025
Early beaker	1700	1850	2000

Distributional distinctions between beaker groups have already been noted [see ch. 1, pp. 72-4], and it is of some significance that overlaying a map of Grooved Ware distribution with that of "early" beakers suggests a strong spatial avoidance between these two groups [fig. 36, pp. 548]. This pattern lends credence to the theories put forward in papers such as Thorpe and Richards [1984], that these two pottery traditions, and their associated networks,

were being manipulated by different, and competing, groups within the neolithic social hierarchy [Thorpe, 1984: 77-79].

Chapter 5: Metalwork Typologies

Devising typologies to cover the myriad forms of metal objects produced from the end of the Late Neolithic has been a favourite subject with many authors, and has led to a plethora of schemes, the various merits of which will not be discussed here. There are three schemes, however, which are of particular relevance to beakers [Piggott, 1963; Gerloff, 1975; Burgess, 1980], and these are considered below.

Piggott, as previously mentioned, began by assigning names to the then current letter designations for beaker types. His Bell and Cord-Zoned beakers (B1 and B3) represented a branch of the continental pan-European Beaker Culture, which (following Sangmeister) he felt originated in the Iberian peninsula, in the "colonist" cultures of Los Millares and Vila Nova de San Pedro. He recognized a duality among the Iberian beaker groups, with the "Maritime" type stretching from the central Mediterranean coast up the Atlantic coast to western France, and possibly Ireland, and the Meseta type, influenced by the central European Bell Beaker Culture, through the "Reflux" movement⁴⁹. The Short-Neck beakers were a development of Dutch influence, at the 2^{1b}/C-2^{2b} stage in van der Waals and Glasbergen's scheme. Long-Neck (A) beakers developed as an insular variant of the Short-Necked form, parallel to the development of the Veluwe style in the Netherlands.

Piggott felt that the Maritime beakers formed a fairly small component in the make-up of the British beaker population. He did however, put forward the idea of the

⁴⁹Sangmeister, G. "Die Datierung des Rückstroms der Glockenbecher und ihre Auswirkung auf die Chronologie der Kupferzeit in Portugal," *Palaeohistoria* 12 (1966): 395-407.

Irish-Iberian connection, noting the similarities in architecture of chambered tombs, and parallels between bone pins, gold ear-rings, and gold cruciform discs. This point has also been enumerated by Burgess, who has suggested beakers in Britain and Ireland represent two different phenomena, with separate "points of origin" in the Atlantic coast tradition, and in the Central European tradition.⁵⁰

The origins of British "Beaker Culture" were then the result of the "Reflux movement," bringing pottery style from the Low Countries, and metallurgy from the Rhineland. These could best be correlated through dagger typology, which Piggott broke down into five groups [Piggott, 1963: 86 and figs. 14-20, see also §fig. 37, pp. 549].

Group 1: associated with Bell beakers; represented by small, riveted, triangular knife-daggers, which have parallels in Reinecke A1 and the Singen-Straubing-Adlerberg group of cemeteries within the so-called Blechshi province.

Group 2: associated with Short-Neck beakers; larger, triangular daggers with large rivets and an omega hilt-plate. These also belong to the Reinecke A1 phase.

Group 3: associated with Long-Neck beakers; large daggers with linguat outline, omega hilt-plate, and large rivets. They represent an insular development from group 2.

Group 4: an Irish type, linguat daggers with a slightly ogival outline and W hilt-plate.

Group 5: large, linguat daggers, with multi-rivet decoration on the hafts. They can be paralleled with the daggers of Bush-Barrow type.

⁵⁰see Burgess, C. "The background of early metalworking in Ireland and Britain," in Ryan, M. (ed.) *The Origins of Metallurgy in Atlantic Europe, Proc. Fifth Atlantic Colloquium*, 1978, 213.

That the Long-Neck beakers were broadly contemporary with the Wessex Culture, Piggott demonstrated through parallels between the Breton barbed-and tanged arrowheads and those from sites such as Green Low and Mouse Low, Derbyshire, the hilt decoration of group 5 daggers, for instance Garton Slack, and the association at Charmy Down of a Long-Neck beaker with a group 1 dagger and a shale bead of Wessex type.

Piggott's typology was refined by Gerloff, in 1975, and extended to include copper tanged daggers. Adapting partly from Clarke⁵¹, she divided the tanged daggers into three groups, each with beaker associations [and fig. 37, op. cit.].

1. Roundway: long, linguat blade, parallel sides, round tip, slightly curved shoulder, straight tang.
2. Mere: smaller, drooping shoulder, narrowing tang, rim bevel on blade.
3. Dorchester: related to Roundway, small, rounded shoulders, broad tang with or without rivet hole.

These three groups are characterized by copper with a high arsenic content (as much as 12%). Gerloff paralleled them with the Dutch beakers of step 2^{1b}-2^{1d}, and the Singen-Straubing-Adlerberg cemeteries of Reinecke A1. They are associated with beakers of Lanting and van der Waals' steps 2 and 3, and, in the case of the Mere and Roundway group, step 3, and step 4 with the Dorchester group. These groups are closely related to sites such as Exloo, with its step

⁵¹Clarke added the following groups of tanged copper daggers to Piggott's scheme: (i) tanged copper daggers, (ii) tanged and single rivet, (iii) rhomboidal single rivet. He felt these groups, and Piggott's types I-V should be roughly chronologically successive [Clarke, 1970: 260-61, and table 13].

2^{1b} beaker, copper awl, sheet gold work and amber beads. Connections to the flat axe series of Burgess and Gerloff⁵² can be made through the find at Kilbannon, Galway, which contained a dagger of the Roundway type with Knocknague axes and several awls.

The riveted, flat bronze daggers Gerloff divided into five primary groups with variants, splitting off those smaller "knife-daggers" (defined as less than 10 cm in length) which she dealt with separately.

1. Butterwick: (Piggott's group III), broad, linguat daggers with bevelled edge, rounded butt, omega hilt, and three plug rivets. Approximately 12 cm x 5.5 cm.
 - a. variant Eynsham: slightly ogival outline, heel with outcurving central lobe.
2. Merthyr Mawr: related to Butterwick, smaller, narrower and more triangular, heel either convex or peaked. 14 cm x 4 cm.
 - a. variant Parwich: short, straight butt, two rivets.
3. Milston: long, broad, linguat blade with numerous rivets (Piggott groups III and V). Rounded point, bevelled edges, convex butt, omega hilt with splayed curve, peg rivets.
 - a. variant East Kennet: shorter blade, triangular butt, rivets in combinations of 3, 5 or 7.

These three groups and their variants are associated with beakers of steps 5, 6, and 7. They can be paralleled to the Migdale/Marnoch horizon of flat axes through the finds at Butterwick, Achnacree, and Wimbourne St. Giles. Gerloff places them contemporary with Wessex I/Bush Barrow (her Armorico-British series), noting the similarities between the multi-rivet decoration common to the Milston blades and

⁵²Prähistorische Bronzefunde, 1981, volume 9, band 7.

the pointillé decoration of the Bush Barrow daggers. Parallels with the Armorican First Series can also be drawn, through the four "Breton" type arrowheads associated with the Wimbourne St. Giles dagger of East Kennet type.

4. Masterton: (Piggott group II), triangular blade, three plug rivets, pointed tip, rounded butt, V or W hilt, blade slightly convex with bevelled edges.
5. Aylesford: Masterton/Wessex hybrid daggers.

These last two groups of flat daggers are found primarily with step 7 beakers. The Masterton type, with its association with shale necklaces, Gerloff places at the end of Wessex I/start of Wessex II, while the Aylesford group, with their similarities to the Camerton/Snowhill daggers, she feels are contemporary with Wessex II.

Two of her groups of knife-daggers are connected with beakers: the knife-daggers with projecting butts, of which Driffield is an example, and the flat-riveted knife-daggers, exemplified by Charmy Down. The former are paralleled with the Dorchester group, and are associated with step 4 beakers, the latter with the Butterwick group, associated with step 5 and 6 beakers.

Both Piggott's and Gerloff's works were heavily borrowed from by Burgess, who began his analysis of the beaker-metalwork relationship by establishing a cultural framework. Following on from his work with Shennan in 1976⁵³, he proposed dividing the Late Neolithic and Bronze Ages into a series of periods named after type sites: Meldons Bridge, Mount Pleasant, Overton, and Bedd Branwen.

⁵³Burgess, C. & Shennan, S. "The beaker phenomenon: some suggestions," in Burgess & Miket, 1976.

The Meldon Bridge period, c. 2700/2500-2100 b.c., was characterized by the Late Neolithic pottery styles (Carrowkeel, Sandhills, Peterborough, Grooved Ware), by an increasing diversification in burial and ritual styles, with new forms including cursus, henges and stone circles. Flat cremation burial, round mounds, and passage graves were in use. This was the end-use period of causewayed enclosures, long barrows and chambered tombs. The next phase, the Mount Pleasant period, c. 2150-1700 b.c., was essentially one of continuation of Late Neolithic developments, both in pottery styles, and in the building and refurbishing of great public monuments. It was marked by the arrival of beaker pottery and metallurgy, but they only "...provide a convenient point at which to make a division between the two periods...these two features were no more than a gloss on existing traditions...." [Annable, 1984: 198]. As Annable has remarked,

...if metallurgy and the introduction of the beaker tradition have no particular relevance then it is difficult to see why they should be used as indicators of the Mt. Pleasant period...."
[Annable, 1984: 198]

Stages I, II, and III of Burgess' metallurgical development can be assigned to this phase. The third phase, the Overton period, c. 1700-1500 b.c., saw the development and demise of late beaker pottery styles, being replaced by Food Vessels and Urns. This phase also saw the end of the great public monuments, and the rise of the "Bush Barrow" group of the Wessex culture. Stages III-VII of metalwork fall within the Overton, and succeeding Bedd Branwen periods.

The second part of his paper is concerned with attempting to interpolate beakers into his metal-working scheme. Burgess defines his metal-working stages as follows:

1. Stage I: straight sided thick-butt axes, of Case's type A, characterized by the Castletown Roche hoard.
2. Stage II: development of stage I axes, with variants having short, curved sides and thick butts, or straight sides and thin butts. This stage is characterized by the finds from Knocknague. Also belonging to this stage are tanged daggers and knives, and double pointed, square sectioned awls.
3. Stage III: thin butt axes with curved sides, of Case's type B, characterized by the hoard from Birr. broad tanged knives with rivets and halberds are also stage III developments
4. Stage IV: characterized by the Killaha East hoard, with narrow ended, curved sided, thin butt axes, paralleled with the Migdale tradition. also belonging to stage IV are daggers with channeled blade, short tangs and rivets, daggers with multiple rivets, gold lunulae, and the ornaments typical of the Reinecke A1 horizon--basket earrings, tubular sheet beads, arm rings and ribbed bracelets.
5. Stage V: axes with decoration, median bevel, and slight flanges. daggers with multiple rivets and plug rivets, and grooved blades of the Aylesford type.
6. Stage VI: narrower axes with straighter sides and low flanges. sheet gold work, bar chisels, single pointed awls, Bush Barrow daggers. parallels with Reinecke A2 and Wessex I.
7. Stage VII: socketed axes, flanged axes, tanged spearheads, socketed spearheads, lugged chisels, Camerton-Snowhill daggers, class 1b razors; metalwork of the Arreton Down horizon, Reinecke A2/B1, Wessex II.

Burgess then attempts to tie beaker developments to this stage scheme. Using Lanting and van der Waals' steps as a framework which "...even a cursory glance...reveals...are indeed chronologically successive...." [Burgess, 1978: 210],

he makes the following points as connections between the two:

1. Step 2-3, stage II: the tanged dagger and double pointed awls of the Knocknague hoard.
2. Step 4, stage III: the broad tanged blade from the Birr hoard.
3. Step 6, stage IV: "...these are the first bronze divisions...", the multiple-rivet hilted blades and bronze ribbed armlets.
4. Step 7, stage VI: first the link between stage VI axes and Bush Barrow burials via the stage VI axe in the Dieskau 2 hoard. second the link between step 7 beakers and Bush Barrow burials through gold ribbed pommel mounts and plug-riveted daggers.
5. Stage VII, "post-beaker": connections with the Aldbourne-Edmonsham groups of the Wessex culture and later cinerary urns.

Table 10: Correlation between Burgess' Metalworking Stages and Beaker Steps, after Burgess.

STAGE	STEP	PARALLEL
I	1(?)	-----
II	2,3	Bell/Maritime Beakers
III	4	Veluwe Beakers
III/IV	5	-----
IV	6	Reinecke A1
V	6	(A1/A2)
VI	7	Wessex I, Reinecke A2
VII	post-beaker	Wessex II

There are a number of problems with these correlations, both typological and chronological. Beginning with the chronological considerations, the use of Lanting and van der Waals' steps as a chronological indicator requires re-examination. As has already been indicated, rather than being strictly successive, steps 1, 2 and 3 are

contemporary⁵⁴. The same is true for steps 5 and 6. Step 4 stands midway between step 3 and 5, while step 7 is contemporary with the end of steps 5 and 6. Further, an examination of the Food Vessel and Collared Urn dates shows them to be exactly contemporary with step 7, while Grooved Ware is paralleled in steps 1, 2 and 3. The Wessex I dates fall within the range of steps 4, 5 and 6, while Wessex II dates parallel step 7.⁵⁵

These radiocarbon associations are well supported by typological connections. Beginning with Burgess' stage I, we see that he suggests this stage may be contemporary with the earliest beaker phase. Although there are no known associations in Britain, Case [1976] points to two finds of trapeze/Altheim axes, parallels to Case's Irish type A, one from Le Pinnacle, Jersey, with maritime beaker sherds, the other, with AOC beaker, from the Po Valley [Case, 1976: 143]. If step 1 beakers are to be associated with stage I axes, then perhaps the step 1 beakers from Alston, Northumberland, and Radley, Berkshire, with their gold basket-earrings, should belong to this stage also. It is to be remembered, however, that both stage I axes and step 1 beakers are long-lived types.

The Roundway type dagger in the Kilbannon (Knocknague) hoard ties step 2 and 3 beakers to stage II metal work. The step 2 beaker from Mere belongs to this stage, as does the step 3 beaker from Winterslow, and, on the parallel of gold button-caps, the step 3 beaker from Farleigh Wick. Steps 2, 3 and 4 and stages II and III can be tied together through a series of associations, beginning with the Roundway dagger

⁵⁴see ch. 1, section 1.4, and §figs. 15 & 16, pp. 532-3.

⁵⁵§see *Summary of Bronze Age Chronology*, pp. 183, and fig. 41, pp. 555.

found with a halberd at Faversham, Kent. This halberd can be paralleled with one from the hoard at Birr, Offaly, found with axes of stage III type. A second line of connections can be made via the small riveted dagger from Birr, paralleled by the Dorchester dagger, found with a step 3 beaker. If step 3 beakers are parallel to stage II metalwork, then perhaps halberds should begin as early as stage II. The connection to step 4 beakers is made through the Dorchester type dagger found at Shrewton 5k, Wiltshire. Other step 4 associations include the beaker from Driffild, Yorkshire, paralleled to the knife-dagger from Dorchester, and the beaker from Lilburn, Northumberland. These step 4/N2 beakers, although somewhat later than the step 2-3, W/MR forms still belong to the same Reinecke A1 horizon.

It is interesting to consider here, in the light of Burgess' contention that step 6 and stage IV are the first full bronze phases, the copper/tin ratios of daggers from stages II-VII. The daggers of steps 2, 3, and 4, stages II and III, are copper, with 0.1% or less tin. In addition, they have a relatively high arsenical content (up to 5.42%). The daggers associated with steps 5 and 6, stage IV and V, are a tin-copper alloy, of vastly differing copper/tin ratios. These are paralleled by the Armorico-British A/B daggers (Wessex I) ranging from 84.8% Cu/15.3% Sn to 95.1% Cu/1.54% Sn⁵⁶.

That step 5 and 6 beakers, stages IV and V, and Wessex I must be contemporary developments is shown by a series of both typological and chronological parallels. First, the famous Dieskau step VI axe, which Burgess refers to.

⁵⁶for a fuller discussion and statistics see Gerloff, 1975: 266-68.

Examining his reference to Butler⁵⁷, one finds that Butler parallels this axe to those from the Colleonard hoard, Banffshire, which belong to the Migdale horizon, and Burgess' stage V. Butler says of this find

...in Central European terms this is equated with Reinecke A1, but it must surely be equated with the very end of that phase...it is contemporary with...the monumental tumulus burials of Leubingen type...the Dieskau hoard can date to a very short time before the arrival of Reinecke A2 imports...the corresponding phase in Britain is Wessex I....[Butler, 1963: 35]

The parallel finds from Helmsdorf and Leki Male date to 1663 ± 160 b.c (Bln 248) and 1655 ± 40 b.c (GrN 5037), dates which fall within the inner hinge range of step 5 and 6 beakers. On the British side there is the "rain-pattern" axe from the ditch at Mount Pleasant. The axe, which Burgess assigns to stage V, comes from layer 10 of the north terminal, west entrance, lying between two dated layers; (BM 646) 1778 ± 59 b.c. and (BM 790) 1669 ± 55 b.c. The upper of these two layers, above the axe, contains beaker pottery of steps 5 and 6. On this evidence, the axe would if anything have to be earlier than steps 5-6, and not, as Burgess states, corresponding to the end of step 6⁵⁸.

There are numerous typological parallels between stages IV and V metalwork and steps 5 and 6 beakers. Following Gerloff's dagger typology, the type Butterwick blade from Darowen, Montgomeryshire with a step 5 beaker, is paralleled by the Butterwick hoard, which also contains a stage IV Migdale axe, five V-perforated buttons, and a round-

⁵⁷Butler, 1963 *Palaeohistoria* 9.

⁵⁸but see the discussion of this site, ch. 6, pp. 216-8, where the stratigraphic sequence relative to the position of this axe is considered.

sectioned awl. A Milston type dagger was found with a step 6 beaker at East Kennet, Wiltshire, parallel with the hoard at Auchnacree, Angus, also containing Migdale axes, and with the grave group from Wimbourne St. Giles, Wiltshire, with a Migdale axe, V-perforated button, pulley ring, round-sectioned awl, and three Breton type arrowheads. Also of the Milston type, a dagger from Yettington, Devon, found with a perforated stone battle-axe, of a type similar to that from Durrington, Wiltshire, found with a step 5 beaker (Clarke 1103). From Gerloff's Merthyr Mawr type is the dagger from Aldro, Yorkshire, with a step 6 beaker, and the dagger from Parwich, Derbyshire, with an axe paralleled in the Colleopard hoard, of Burgess' stage V.

Links through ornaments include the bronze ear-ring from Buxton, Derbyshire, with a step 6 beaker, with the ear-ring from the Migdale hoard, the D-sectioned bronze bracelet from Crawford, Lanark, with a step 6 beaker, and similar bracelets from Migdale, Sutherland, Sluie, Moray, and Auchnacree, Angus, and the flat sectioned bracelet from Berden, Essex, with a step 6 beaker, paralleled by the bracelet from Mill of Laithers, Aberdeenshire, with a type Migdale axe.

Gerloff's flat riveted knife daggers provide further connection between step 5 and 6 beakers and Wessex I. The small blade from Charmy Down, Somerset, with a shale bead and step 5 beaker, is paralleled by Manton barrow, Preshute, Wiltshire, Piggott's Wessex grave 68. Other daggers of this type include those from Fernworthy, Devon and Pentraeth, Anglesey, both with step 6 beakers. Also belonging to this group is the dagger from Winterbourne Came, Wiltshire, found with daggers of Gerloff's Armorico-British C and Camerton types. These daggers represent the end of Wessex I/beginning of Wessex II, and if they are to be paralleled with beakers of step 6, then Burgess'

correlation of Wessex I-step 7 beaker seems unlikely at least⁵⁹.

That there is, however, some overlap between step 6 and 7 beakers and Wessex I is shown both through the radiocarbon dates and through the associations of Eynsham, Oxford, and Ashgrove, Fife, both step 7 beakers with daggers of the Butterwick type. It was Gerloff's opinion that the Butterwick daggers were contemporary with both phases of the Wessex culture; this is borne out by the radiocarbon date from Ashgrove, Fife, 1000 ± 150 b.c. [Henshall, 1963], and the metal analysis of the Eynsham dagger, which is most similar to Wessex II types.

The current radiocarbon dates for Wessex II graves fall in the range of late step 7 beakers. On the basis of associations the step 7 beaker, with its stage VII razor, must be contemporary. So too the step 7/Food Vessel hybrid beaker from Balmuick, Perthshire, paralleled by the Rillaton cup and its Camerton-Snowhill dagger. Stage VI must also be contemporary with step 7 beakers; the find from Llanddyfnan, Anglesey with its stage VI chisel and Aylesford type dagger, connected with the Aylesford burial, which also contains a type Masterton dagger, paralleled by Linlathen, Angus, with its step 7 beaker.

An evaluation of Burgess' scheme would suggest that several of his metalworking stages overlap, rather than being strictly chronological. In light of the correlations

⁵⁹see also Gerloff, 1975: 95, and ch. 9, pp. 391. It would appear, on the basis of both typological development, and grave associations, that Wessex I and Wessex II must be largely overlapping in duration, if not completely contemporary.

presented above, the following ammendments to his scheme are proposed:

Table 11: Correlation between Metalworking Stages, Beaker Steps and the Wessex Culture

BURGESS STAGE	BEAKER STEP	PARALLELS	NEW GROUP
I II III	1(??) 2,3 3,4	Reinecke A1	—1
IV V VI	5,6 5,6(7) 7	Wessex I Wessex I/II	—2
VII	7 (end)	Wessex II	—3

On this basis, metalworking stages I-III would be contemporary with beakers steps 1-3 and in some cases 4 ("early" beakers), stages IV-VI with steps 5-7 ("middle" beakers)/Wessex I/II, and stage VII with the end of step 7 ("late") beakers.

Summary: Late Neolithic - Early Bronze Age Chronology.

1. Late Neolithic

Kruskal-Wallis analysis of the "Neolithic" groups: Peterborough Ware, Grooved Ware, and "early" beakers, gives the following ordering [also fig. 40, pp. 554]:

Group:	Median:	Ave. Rank:	Z value:
North Grooved Ware	2190	118.0	+ 5.20
Peterborough Ware	2280	100.9	+ 1.92
South Grooved Ware	1950	72.3	- 1.73
Beaker step 3	1900	62.1	- 2.14
Beaker steps 1-2	1860	59.1	- 3.01
Overall		81.5	

$H = 37.66$, for four degrees freedom, $H > 0.001$; 99.9% probability

The H value indicates that these groups could not have been drawn from the same population. Z values suggest that these types can be broken into two general groupings: Northern Grooved Ware and Peterborough Ware, and Southern Grooved Ware and "early" beakers. Kruskal-Wallis analysis of the first indicates that there is only a 10% probability of the null hypothesis being correct, and the average ranks, of 118.0 and 100.9, suggest that these two pottery types have a very similar chronological range. Results for analysis of the second group depend on how the types are ordered: when grouped as Southern Grooved Ware--beaker steps 1-2--beaker step 3, there is no significant difference in their ranges. However, when the dates for beakers 1-3 are combined, the H statistic is large enough to justify the null hypothesis, and the Z values, at ± 1.96 are significant. Earlier

analysis of beaker types has shown that there is no significant difference between steps 1-2 and step 3, and the boxplot ranges and medians of Southern Grooved Ware and "early" beakers do not appear so different as to justify separating these two pottery types chronologically.

2. Bronze Age Chronology.

Kruskal-Wallis analysis of the Bronze Age pottery types: "middle" and "late" beakers, Food Vessels and Collared Urns gives the following ordering [also fig. 41, pp. 555]:

Group:	Median:	Ave. Rank:	Z value:
Beaker step 4	1775	97.7	+ 3.55
Beaker step 5	1716	90.7	+ 3.34
Beaker step 6	1668	77.5	+ 1.34
Food Vessels	1545	58.8	- 1.12
Beaker step 7	1475	46.1	- 1.97
Primary Coll. Urn	1447	40.9	- 2.53
Second. Coll. Urn	1440	41.7	- 2.53
Overall		64.5	

$H = 38.12$, for six degrees freedom, $H > 0.001$; 99.9% probability.

The H value indicates that these groups are not from the same population, therefore not contemporary. Beaker steps 4 and 5, and beaker step 7 and Collared Urns have Z values above the ± 1.96 significance level, and can therefore be considered as chronologically distinct from each other, and from beaker step 6 and Food Vessels. Earlier analysis has suggested that beaker step 6 should be placed with steps 4 and 5, although this is not a particularly "tight" grouping. Separate analyses of Food Vessels and step 6 beakers, Food

Vessels and Collared Urns, and Food Vessels and step 7 beakers indicate that:

1. Food Vessels and step 6 beakers^{are} significantly different, with an H statistic of 95% probability, and Z values of ± 1.97 .
2. Collared Urns and step 7 beakers are not significantly different, with an H statistic of 25% probability, and Z values of ± 0.39 .
3. Food Vessels and step 7 beakers are not significantly different, with an H statistic of 50%, and Z values of ± 1.11 .

On this basis it can be suggested that Food Vessels should be grouped with Collared Urns and step 7 beakers. Boxplot analysis of these groups shows, however, that Food Vessels have a date range falling between that of "middle" beakers, and "late" beakers/Collared Urns.

3. Summary

On the basis of the above analysis, we can suggest the following conclusions concerning the chronological relationships of pottery types in the Late Neolithic/Early Bronze Age period:

1. The pottery types current during this period are not contemporary; they can be shown statistically, by analysis of radiocarbon dates, to be divided into chronologically distinct groupings or periods.
2. Considering beaker pottery first, the seven steps in beaker typology can be shown to be chronologically successive, from steps 1-2 to step 7. Chronological distinctions can be drawn between steps 1-3, steps 4-6 and step 7, and these can be labelled "early", "middle" and "late" beaker groups.

3. Considering all pottery types for the Late Neolithic/Early Bronze Age, the chronological succession, on the basis of Kruskal-Wallis and boxplot analysis is: Northern Grooved Ware, Peterborough Ware, Southern Grooved Ware, "Early" beaker, "Middle" beaker, Food Vessels, "Late" beaker, and Collared Urns.
4. The date ranges for these pottery types, although successive, overlap to varying degrees. The amount of overlap can be assessed by using boxplot analysis, which suggests the following ranges [also fig. 42, pp. 556]:

Group:	UIF	LH	MH	UH	UIH
North GW	1820	2065	2190	2380	2500
Peterbr.	1360	1750	2280	2600	3780
South GW	1515	1800	1950	2025	2365
Early Bkr.	1275	1700	1860	2000	2460
Middle Bkr.	1280	1575	1725	1825	1990
Food Vessel	1210	1435	1545	1645	1875
Late Bkr.	975	1320	1475	1560	1695
Coll. Urn	1235	1335	1440	1560	1810
Wessex I/II	920	1190	1264	1527	1698

5. On the basis of the above ranges, and Kruskal-Wallis analysis results, broad "ceramic typological periods" can be suggested. The "main period" for each ceramic type is drawn from the hinge range, the "maximum period" from the fence range. In each case, $\pm 50\%$ of the dates will fall within the "main range", $\pm 99\%$ within the "maximum range".
- a. 2400 - 2050 b.c. (c. 2600-1800 b.c.): Peterborough Ware and Northern Grooved Ware.
- b. 2050 - 1700 b.c. (c. 2400-1500 b.c.): Southern Grooved Ware and "early" beakers.
- c. 1800 - 1600 b.c. (c. 2000-1300 b.c.): "middle" beakers and Wessex I/II (earliest dates).
- d. 1650 - 1300 b.c. (c. 1900-1000 b.c.): Food Vessels, "late" beakers, Collared Urns and Wessex I/II.

The effect of calibration on dates and date ranges is to shift the date/range earlier in time. The "wiggles" in the calibration curve do not appear to significantly affect the distribution of date ranges/groups over time, although a slight "spreading apart" of the groups after calibration was noted.

**Part 2. Beakers and Pre-existing Monuments:
evaluation of evidence from Sites**

...rather, we should investigate those contexts in which reuse of older monuments was thought necessary... [Bradley, 1984b: 63].

Introduction

The second part of this thesis is concerned with an evaluation and possible interpretation of the deposits of beaker ware in and around causewayed enclosures and henge monuments. Emphasis is placed upon discovering patterns (if any) of deposition (chs. 6 & 7), and comparing these patterns, at the intra- and inter-site level (ch. 8). Burials in round barrow cemeteries and relationships between round barrow cemeteries and other monuments are considered (ch. 9), and conclusions are drawn as to the changing patterns of deposition, and thus ritual practice, from the Late Neolithic through Early Bronze Age (conclusions).

It is not the intention of the author to provide a detailed description of the archaeological history of each site. A summary of the salient features is provided in tables 35 & 36 [§pp. 513-4], and references to published excavation reports are given in the bibliography. The discussions will concentrate on the "beaker period" from each site, and on such evidence as is relevant to the evaluation and understanding of the beaker deposits.

Before beginning analysis of beakers on henges and causewayed enclosures, it is pertinent to consider the nature of ditches, and the manner in which they fill, as the majority of evidence presented comes from deposits of this type. It has long been assumed (and indeed still is by many archaeologists) that in the course of natural silting processes, particularly in areas of chalk bedrock, large quantities of chalk rubble (or gravel) will accumulate fairly quickly in

the bottom of the ditch. This would indeed appear to be the case where the bank has been revetted, and the revetment decayed, allowing the bank to collapse into the ditch [see for instance Hambledon Hill, Mercer, 1980].

However, in the case of most Neolithic ditch and bank monuments, the constructional techniques produced rather a segmented ditch with dump bank, with little or no evidence for revetment of any type (it must be borne in mind, however, that this does not preclude a revetment being present). Experimental studies undertaken at two sites, Overton Down and Morden Bog, suggest a different fill pattern for constructions of this type.

The first of these two earthworks, Overton Down, was begun in 1960. It was constructed of alternating layers of chalk and earth, to simulate a Neolithic-type dump-construction bank [see Jewell, 1963, for details]. The ditch was flat bottomed and steep-sided, separated from the bank by a 4' berm. It was intended that the ditch and bank be sectioned at intervals of 1, 2, 4, 8, 16, 32, and 64 years, in order to check the progression of decay. The report of the first four years appeared in 1966 [Jewell and Dimbleby].

Changes in the ditch and bank were summarised separately [op. cit., pp. 314-320, see figs. 1-2, also §fig. 44, pp. 558] beginning with the ditch. By March of 1961 (7 1/2 months after construction), chalk rubble was 10-12" up the sides of the ditch. The "stratigraphy" of the silts at this point showed that

...the lowest level, resting on the chalk floor, consisted of a sprinkle of dark soil, derived from the topsoil at the lips of the ditch. Above this the major part of the

deposit consisted of fine chalk rubble interspersed with soil crumbs. Only the topmost 1-2 inches was coarse, clean chalk fragments... [Jewell, 1966: 314-5].

The centre of the ditch was bare, and remained largely uncovered until after the April 1962 examination. At this point it was noticed that the upper edges of the ditch sides were becoming weathered and undercut, causing turf to fall into the ditch. By March 1963 (32 months after construction) the rubble had risen up the sides to nearly the lip of the ditch. The July 1964 section showed that the angle of repose of the silts was becoming shallower, and the uppermost 3-4" were markedly more fine grained and earthy than the lower deposits. The ditch was approximately one-quarter full at this time.

Sections taken over the same period showed that the bank, rather than wearing down, slowly consolidated. By September 1962 (25 1/2 months after construction) the uppermost layers had formed a crust, which resisted further erosion. The crest had sunk 4" due to compression of the innermost layers, while the base had spread c. 9" front and back. Grasses were beginning to grow up, containing further spread of the edges. The section at 48 months (July 1964) showed little change from this situation.

The earthwork at Morden Bog, Wareham, constructed along the lines of Overton Down, showed a very similar pattern of decay, although here the constituents were sand and clay, rather than chalk and earth. The earthwork was constructed in 1963, and sections were taken after 1, 2, 5, and 9 years [Evans, 1974: 170, see fig. 4, pp. 178]. The 1972 section showed the following sequence of infilling [op. cit., fig. 5]:

- a) fine sands form a thin layer across the bottom of the ditch.
- b) larger lumps of clayey sand fall in, banking up the sides at a relatively steep angle.
- c) successive deposits of sand and fine clay build up, interspersed with occasional organic material from fallen turf.

Fig. 6 [ibid.] gives superimposed the cross profiles of the ditch sections, 1964-72, which bear strong similarity to those from Overton Down. The bank underwent processes similar to those described above, although the consolidation of the upper layers was a slower process, and more of the bank was lost due to erosion.

These experiments elucidated a number of points to be borne in mind when examining Neolithic-type ditch and bank structures. After four years at Overton Down, and nine years at Wareham, the ditches were approximately 1/4 full, and contrary to original expectations, neither bank had collapsed into the ditch. Jewell and Dimbleby concluded that

...in excavated sites, therefore, it can be inferred that substantial deposits of bank-material found in the ditch-filling are more likely to have been transferred by human than by natural agencies, unless it can be shown that the original berm was very narrow...
[Jewell, 1966: 340].

Secondly, the relatively late infilling of the centre of the ditch, in comparison to the edges, especially in the Overton Down earthwork, suggests caution in interpreting finds from the bottom of the ditch as "primary" and thus relating to construction. "...from the pattern development of the filling it follows that finds in the angles of the ditch-bottom, close to the wall, are more reliable as dating

evidence...." [Jewell, op. cit., pp. 341]. Finally, there is the nature of the deposits, the "primary silts." It seems clear that the sequence of thin soil and fine chalk, overlain by coarse chalk rubble, as in the un-recut ditch at Overton, is distinctly different to the fill in ditches such as Stonehenge, or Windmill Hill, where coarse chalk rubble extends to the solid chalk base. Ditch fills of this latter type would appear to be the result of human activities: cleaning, refilling (from elsewhere) or backfilling and recutting, rather than erosion.

Chapter 6: Henge Monuments⁶⁰

Durrington Walls, Wilts.

Principal excavations of Durrington Walls were carried out by G.J. Wainwright in the autumn of 1966 and summer 1967, and by P. Drewett in summer 1968, in the advance of roadworks.

Previously, excavation of a pipe trench [Farrer, 1918] had cut a section diagonally across the site. A sherd of beaker was recovered from a charcoal deposit on the fossil soil below the bank. Directly above this deposit an intact burial was found, and Farrer records "...no signs of disturbance in the overlying strata..." [Farrer, 1918: 100, although it seems unlikely that disturbance would be detected in chalk rubble]. The beaker sherd (now lost) is described as "...ornamented outside with elongated dots set chequerwise and separated by incised bands..." [Farrer, op. cit.]. This pattern may be similar to Clarke 1:2 or 1:3 [Clarke, 1970, II, pp. 429], indicating a beaker of "early" type. The location of the charcoal layer, at the western side of the bank, may indicate that the overlying bank is the result of slip or ploughing; however both Farrer, and O.G.S. Crawford, who re-examined the evidence, felt this was not the case [see Crawford, 1929: 57].

Excavations conducted in the winter of 1951-2 [Stone, J.F.S. et al. 1954] in the east sector of the bank [see Wainwright, 1971, fig. 2] revealed a double line of postholes along the edge of the bank, underlying the bank slip (?possible remains of a revetment). Above both the postholes and overlying the bank slip Grooved Ware and beaker-type ware [op. cit.,

⁶⁰see §fig. 43, pp. 557, for location map.

fig. 8, 17, 20-3, 25-9] were found. The beakers are probably of "middle" type. Radiocarbon dates for the fossil soil under the bank, and sealing the postholes were 2625 ± 40 (GrN 901a) and 2635 ± 70 (GrN 901) [Piggott, 1959.]

The excavations of 1966-68 consisted of a trench across the eastern side of the site, oriented north-south, 761.9m long and 18.2 - 39.6m wide. The trench crossed the west end of the northern bank and ditch, the central area of the henge and the south-east ditch terminal and southern ditch and bank, to the east of the 1951-2 trench. In the course of these excavations two timber posthole structures were discovered, and designated the Northern and Southern Circles. The site had been under continuous ploughing, and as a result was much eroded, particularly in the northern sector, although soil movement had led to additional soil being deposited in the southern (downslope) areas, enhancing preservation of the archaeological deposits in these locations. This action may have had a differential effect on feature and artefact recovery.

In total, 6337 sherds of pottery were recovered from the excavation; 5681 sherds of Grooved Ware (92% of the total assemblage), 397 "Windmill Hill" ware (6%), 71 beaker (1%) and 1 Peterborough Ware. "...the 71 sherds of beaker and related pottery recovered from the site represent a minimum of 27 vessels and a probable maximum of 38...." [Wainwright, 1971: 71]. Beaker sherds were recovered from the following contexts:

1. Ditch, north sector, layer 5-6.
2. Ditch, south sector, layer 4-5.
3. Southern Circle, postholes 22, 23, 33, 50, 71, 74, 83, 95, 102, 139; surface of platform, ols beneath platform, ploughsoil above platform.
4. Midden.
5. Northern Circle, posthole 43.

The north sector ditch, as excavated, was 12.8m wide and 5.7m deep, with a flat bottom. The stratigraphic sequence was as follows: the primary silts (layers 6-8), the secondary silts, containing extensive areas of burning ("hearths", layers 4-5) and the old ploughsoil (layer 3 and above). "...All the silted material in layers 5-8 must have been derived from the sides of the ditch--probably by frost weathering...." [Wainwright, 1971: 19]. Pottery recovered from the ditch was largely grey, undecorated ware of Iron Age date, which extended to layer 6, and was found in conjunction with sherds of Ebbsfleet Ware in hearth 3, layer 5. Charcoal from this hearth was radiocarbon dated to 1680 ± 110 (BM 286). Two sherds of beaker were recovered from hearth 5 in layer 5-6. This hearth produced a radiocarbon date of 1610 ± 120 (BM 285).

After a trial trench was dug, the remainder of the upper silts (layers 2, 4, 12 and 13) in the south sector ditch were removed by machine. These silts produced material of Iron Age type [see Wainwright, 1971, 21 note 3]. "...The silting profile is much the same as that described from the north sector...." [Wainwright, 1971: 21]. Except for two sherds of beaker, the pottery recovered from the lower silts, layers 5-8, is entirely Grooved Ware. One sherd of beaker came from layer 4-5, the second (matching) sherd from an unstratified context.

Although it cannot be conclusively determined from the section drawings [see Wainwright, 1971, figs. 4 and 6], it seems likely that there was activity in the ditch during the Iron Age, probably in the form of ditch cleaning or recutting. The presence of Iron Age sherds in layers 5 and 6 of the north sector ditch would suggest that this activity extended to the

"primary silts"; this would account for the juxtaposition of Iron Age and Ebbsfleet pottery (and would effectively invalidate the radiocarbon dates). This Iron Age activity may relate to the Packway enclosure and field boundaries and to the pits of Iron Age date in the Northern Circle. The south ditch layers were removed to two-thirds of the total depth of the ditch, destroying the later silts; however some Iron Age material was recorded from layers 12 and 13, interpreted by Wainwright as an "erosion gully" [op. cit., pp. 21]. A beaker sherd recovered from an unstratified context matched one from layer 4-5; it is difficult to know if this is the result of Iron Age interference or excavation "procedural error."

The beaker represented by the sherds from the south ditch section is of the "late" type (step 7), probably similar to the biconical vessel from Wilsford 62 [see Clarke, 1970, no. 1177]. Sherd P598, with horizontal fingernail impressions and P601, with diagonal groove, from the north sector, are "middle" beakers [steps 5-6, see Clarke, 1970, nos. 1052, 1168, 1172 for comparison]. It is noted that these sherds represent the largest and most reconstructable portions of beaker vessels from the site. Richards and Thomas, in their analysis of intrasite spatial patterning at Durrington, stated that this was also the case for Grooved Ware; "...the sherds recovered from the primary ditch silt represented few vessels, some of which are almost complete...." [Richards, 1984: 197]. By contrast "...no complete pots could be reconstructed from the material recovered from the internal features...individual vessels were generally represented by only a few sherds..." [ibid.]. A perusal of the pottery catalogue, however, would indicate that this may be an overstatement. Of the

pots which can be reconstructed in part (1/4 or more), the majority come from the postholes and platform of the Southern Circle or from the Midden. The two whole vessels, P27 and P222, come from postholes 44 and 91. It is also noted that the proportion of rims represented is far greater than bases, particularly among the partially reconstructable vessels.

The Southern Circle was located 27.4m north-west of the east entrance [§see fig. 45, pp. 559]. Approximately two-thirds of the structure was excavated, and on the basis of the intersection of postholes, was postulated to have at least two phases. The first consisted of four concentric circles of small posts, with a close-set timber facade to the south-east, and a "four-poster" type structure in the centre, and the second of six concentric circles of large posts (with ramps), and a clearly demarcated entrance to the south-east with a "platform" of packed chalk in front. "...the bulk of the remaining refuse was obtained from the postholes...from layer 3a of the base of layer 3...at the base of the weathering cones..." [Wainwright, 1971: 25]. The weathering cones were intact, and there was no evidence to suggest that the phase I posts were removed to make space for those of phase II. The stratigraphic position of the finds meant that they should post-date the timber structure. Wainwright, however, interpreted them as being placed around the timber uprights "...possibly as offerings..." [*ibid.*].

2216 Sherds of pottery came from the postholes, representing the largest deposit of pottery on the site. This included 2199 sherds of Grooved Ware, 16 sherds of beaker, and the only Peterborough Ware sherd from the excavations. Beaker pottery was recovered

from posthole 139, of phase I, and postholes 22, 23, 33, 50, 71, 74, 83, 95, 102, and the surface of the platform, phase II. It was the opinion of the excavator that the beaker from posthole 139 was probably in a derived context, as posthole 139 was cut by posthole 23, and approximately one-third of it was removed. Sherds P588, 591-2, from postholes 23 and 139, are probably from the same vessel, a "middle" beaker (compare Clarke, 1970, nos. 1164, 1185). They represent the most complete vessel from the interior features, and it is notable that they are derived from one of the two entrance postholes (the other being posthole 22). The remainder of the sherds are small, and largely unassignable, probably each from an individual vessel. Sherd P597, with a reverse triangle motif, from posthole 71 is likely to be of "middle" type, as is sherd P593, with a hatched triangle motif, from posthole 50 [see Clarke, 1971, nos. 363, 1119]. A second sherd of P593 (P594) was recovered from the midden, located to the north of the southern circle, and across the structure from posthole 50.

The sherds recovered from the surface of the platform are also "middle" in character, although too small to allow more positive identification, the exception being P568-9, the only cord-decorated beaker sherds from the site. They would appear to represent two different vessels; the application of the cord is quite different. Also recovered from the platform was sherd P605, which was finely decorated on both internal and external surfaces, and was interpreted by Longworth as a shallow lid. It can be matched by a sherd from the Sanctuary, Overton Hill [see Cunnington, 1931, plate VII.1].

Dates for the construction of the phase II circle are taken from the packing around posthole 92; 1950 ± 90 , 2000 ± 90 , and 1900 ± 90 b.c. (BM 395-7, on antler, charcoal and animal bone). The date for the Southern Circle, phase I, 1810 ± 170 b.c. (NPL 239), post-dates phase II. It is noted that the phase I date is derived from antler taken from postholes 127, 137, 138, and 141 of the facade. Of these, 137, 138 and 141 are recut by phase II postholes, while 171 and 192 are re-cut by phase II postholes and posthole 187, from the four-poster structure (which is quite different from the other three postholes in the structure). One might suggest that the facade and possibly the four-poster were contemporary with or later than phase II.

The midden was an elongated hollow, 6.7m x 12m, aligned N-S and located on the north-east perimeter of the southern circle. It was surrounded by two arcs of stake-holes. The alignment of the southern-most of these cuts across the outer circle of the Southern Circle, but no postholes intersected, so the stratigraphic relationship between the two could not be established. No details of the internal structure of the midden are provided in the published report, and its use as a midden is conjecture on the part of the excavator. Bulked charcoal produced a radiocarbon date of 2320 ± 125 b.c. (NPL 192), which, (insofar as it has any validity at all) is not inconsistent with the date of 2450 ± 150 b.c. (NPL 191) for pre-henge activities.

Twenty-five beaker sherds were recovered from the midden, with 981 Grooved Ware sherds and three Middle Neolithic sherds. This is the same number of beaker sherds as recovered from the Southern Circle. The assemblages from these two structures are very similar,

"middle" to "late" sherds and rusticated sherds, with sherds of vessel P593-4 found in both structures.

Wainwright felt that the Northern Circle should also be two-phased, although there was no recutting of postholes serve to indicate stratigraphic relationships, and all the postholes "...had been much destroyed by ploughing and the natural process of erosion...in most cases only the very bases of the postholes had been preserved...." [Wainwright, 1971: 41]. His suggested phase I consisted of an outer arc of small postholes and the possible remains of an avenue, while phase II consisted of two concentric circles of postholes with a facade and avenue to the south, and a "four- poster" structure in the centre.

All finds occurred in the upper deposits of the postholes (layer 4) in a position similar to that of finds from the Southern Circle. Most of the sherds were recovered from the central setting of four posts, these being the largest and deepest postholes of the structure. No pottery was recovered from the postholes of phase I. One beaker sherd, P571, was found in posthole 43, along with 243 of the 261 flints from the structure. It is of "middle" type [compare Clarke, 1970, no. 1034]. An antler from the packing of posthole 42 produced a radiocarbon date of 1955 ± 140 b.c. (NPL 240), indicating contemporaneity between the construction of the Northern and Southern circles (in phase 2).

If the facade and four-poster structure of the Southern circle are contemporary with or later than phase II, there are several comparisons which can be made between the two circles. Both have a first phase of slight timber-post construction, followed by a more

substantial timber (with ramps) circle, a "four-poster" arrangement in the centre, and fronted by a close-set timber facade. Neither have any pottery finds from phase I, but are associated with Grooved Ware and beaker in phase II. Both show concentrations of finds, which may be interpreted as "ritual" deposits, for instance in posthole 42 of the Northern circle.

The beaker material from the circles, north and south ditches forms a contemporary assemblage of "middle" and "late" vessels, mostly steps 5-7. The only possible "early" material are two sherds with cord decoration from the surface of the platform. The sherds recovered from the ditch, and from the postholes at the entrance to the Southern circle are noticeably larger, and represent a greater proportion of the individual vessels than those derived from other contexts. It is also noticeable that beaker pottery, and pottery deposits in general concentrate on the entrance to the Southern circle, aligned with the main enclosure entrance. Wainwright noted that

...human debris became much more common as the ditch terminal approached...conforms with the concept of material being thrown into the latter by people leaving or entering the enclosure via the causeway... [Wainwright, 1971: 21-2].

This may suggest a focus of activities along this NE-SW axis, in line with the main enclosure entrances and Southern circle. On the basis of the evidence presented, the following interpretation of activity on the site can be suggested.

1. There was activity on the site in the pre-henge phase, dated by charcoal from under the south bank, 2625 ± 40 b.c., 2635 ± 70 b.c. (GrN 901a, GrN 901) and north bank, 2450 ± 150 b.c. (NPL 191). This activity may have included the midden area at some stage.

2. The Southern and Northern circles (phase 2) were constructed contemporaneously. Dates for the bottom of the ditch, south, 1977 ± 90 b.c., 2015 ± 90 b.c., and 2050 ± 90 b.c. (BM 398, BM 399, BM 400) agree with dates from the Southern circle, phase II, 1950 ± 90 , 2000 ± 90 and 1900 ± 90 b.c. (BM 395, BM 396, BM 397), and the Northern circle, phase II, 1955 ± 140 b.c. (NPL 240).

Considering the nature of the "primary silts" [as discussed above], it is possible that these deposits, representing reworking of the ditch and bank, are contemporary with phase 2 activity, and represent a period of overall modification on the site, associated with Grooved Ware (in the ditch) and followed by (or possibly associated with) "middle" beaker deposits.

Phase 1 activity could then correlate with primary ditch and bank construction. Alternately, phase 1 could represent pre-enclosure activity, with unenclosed circle(s), which were then modified in phase II, at which time the enclosure ditch was dug. The alignment of the Southern circle entrance (phase II) and ditch and bank entrances would support this. The "early" beaker from under the bank could then be associated with the pre-enclosure phase.

3. It is noted that the deposition of pottery, and some bone artefacts (for instance the deposit of 57 antler picks in the SE ditch terminal, site IV) appear to concentrate around the entrances.
4. The beaker pottery from the site appears to be uniformly of "middle" or "late" type, with the exception of two sherds of cord-decoration from the platform (and one from the deposit against the bank, 1952 trench). The stratigraphy of the ditch was extensively disturbed by Iron Age recutting (invalidating the radiocarbon determinations from hearths 3 and 5, north ditch). The possible appearance of a beaker sherd of "early" type sealed under the bank [Farrer, 1918] may suggest beaker of this type was already present when the henge was constructed [see above (2)]. It seems more likely, however, on the basis of the 1952 excavations, that this sherd was sealed by bank slip, and post-dates the bank construction.
5. If the date for the beaker material from hearth 5, north ditch cannot be taken as reliable, but contaminated by Iron Age activity, there is no reason to suppose that the beaker deposits in the ditch and postholes, which are of the same "middle"

type, are not contemporary. It would seem fairly clear that the beaker deposits post-date the construction of the site, which may be associated with Grooved Ware, however the degree to which they do so is unknown.

6. It is interesting to note the size of sherds, condition, and general completeness of vessel for the Grooved Ware recovered from the Southern circle. The large portions of vessels represented, and the high proportion of rims to bases, suggests that their deposition was not casual. This is in contrast to the beaker material, where most vessels are represented by a single, small sherd. Very different depositional practices could be postulated to produce these dissimilar patterns.

Woodhenge, Wilts.

Principal excavations were carried out on this class I henge by Col. B.H. and Mrs. M.E. Cunnington during the summers of 1926, 1927 and 1928. The henge, which consisted of a circular bank and internal ditch, had been under continuous cultivation, and was originally identified from the air, by differences in vegetational growth. As a result of cultivation, the bank was largely ploughed away, especially in the north and east. In the course of the excavations soil was removed to expose the surface of undisturbed chalk over the entire interior of the site, and trenches were cut across the bank and ditch at the ditch terminals, and on the east, south and west sides [Cunnington, 1929, plate 3]. Six rings of timber postholes, designated A to F, were discovered in the interior. Further excavations were carried out by J. G. Evans in June 1970, consisting of a trench 2m x 27m, across the ditch and bank on the south-east side [see Wainwright, 1979, fig. 40].

The excavations of 1926-8 and 1970 recovered a large quantity of Grooved Ware, together with "plain bowl"

Neolithic wares and beakers. The beaker pottery was recovered from:

1. the old land surface under the bank
2. the ditch, west of the entrance, "below the lowest turf-line"
3. the timber postholes; A60, B6, and C5, 9 and 13.

The bank, where it remained, was a maximum of 4 1/2 inches high, overlying a darker band, representing the old land surface. The bulk of the pottery from the site was recovered from this darker layer, as well as a large portion of the bone and flint assemblages.

The ditch was flat-bottomed, 6'-7' deep and 12'-16' wide. It had at least two causeways; in the south section, where the ditch narrowed to 4' wide, and in the south-east section, where a "buttress of unquarried" chalk, 1m high, extended across the section. The ditch silts were divided by three old turf lines [see Wainwright, fig. 43], layers 5c, 5a and 3 in Evans' stratigraphy. Romano-British pottery was recovered from layer 5c and above, and it was postulated that the site first came under cultivation at this time [Wainwright, 1979: 196].

Cunnington suggested that the coarse chalk "primary fill" of the ditch was derived from weathering of the ditch sides, rather than from backfilling of the bank into the ditch. This was Evans' opinion also, "...although it is possible that a slightly greater quantity of coarse chalk rubble in the outer ditch angle represents some deliberate backfilling of the ditch..." [Wainwright, 1979: 73]. Antler picks from the ditch floor were dated to 1867 \pm 74 b.c. (BM 677), and animal bone from the "primary fill" (layer 8) to 1805 \pm 54 b.c. (BM 678).

The pottery from under the bank consisted of Grooved Ware, with a small component of "plain bowl" Neolithic ware, and beaker. Most of the Grooved Ware came from the southern side of the area, presumably opposite the causeway. This formed the largest single pottery group on the site. The next largest assemblage came from the west side. The beaker from under the bank comprised sherds of two vessels: an all-over-comb and a European bell or Wessex/Middle Rhine beaker, probably very similar to that illustrated in Cunnington's report [op. cit., plate 25.3]. Both these beakers are of "early" type.

Grooved Ware came from layers 6-8 of the ditch, the greatest concentration being in the eastern ditch terminal. Some was also found in the western ditch terminal, but very little from the remaining sections, in contrast to the bank. "Plain bowl" wares came from layer 8 of the ditch, and beaker from "just under the lowest turf-line", layer 6a of fig. 43. The beaker sherds are from two vessels: an all-over-comb, illustrated in Cunnington plate 41.4, and a European bell beaker, plate 25.3. A third possible beaker-type vessel, plate 29.21, came from layer 6b. These beakers are all of "early" (steps 1-3) type.

Six concentric timber posthole circles were discovered in the interior of the monument, and labelled A to F, A being the outermost. The number of postholes in each ring ranged from sixty to twelve. The postholes of the A ring varied the most in size and alignment. The C postholes were the most substantial, and were each provided with a ramp. The B ring postholes were second largest, and also had ramps. The

postholes of rings D, E, and F were very similar in size and alignment, being deep and narrow.

Six holes outside the henge (holes 1-6) and ten holes within the interior (holes a-j) were also discovered; a number of these Cunnington postulated had a role in the alignment of the monument to the summer solstice (holes a, b, e, g). Holes 5-6 (and possibly also 1-2) lie under the bank, and these, with hole j, which is cut by hole C11, may represent pre-henge activity. Hole g is roughly central to the monument; it contained the burial of a child whose skull had been cleft.

Cunnington felt that, on account of the alignment of posthole ramps, circle C was erected first. The placement of posts for circles B and A were measured from circle C. It is interesting to note that only circles A and B have an "entrance gap": between holes A 43-44, and B 23-4. This entrance is only roughly aligned on the causeway of the ditch and bank, and may suggest that the circles A-C and the ditch and bank were not constructed at the same time. Circles D and E were measured from circle F; these circles are in fact ovals, and their alignment does not match that of rings A-C, nor that of the entrance causeway.

The artefact assemblage from these circles forms an interesting group. The postholes produced Grooved Ware and beaker, but no "plain bowl" Neolithic wares were found. The sherds appear to be smaller and less-well preserved than those of the ditch and bank. The animal bone is largely teeth, vertebrae, scapulae, and split long bones, the flints are primarily burnt flakes. The largest quantity of finds of all types comes from

circle C, and finds in general are more common in rings A-C than in rings D-F.

The Grooved Ware is described as coming from "deep" in or at the bottom of the postholes. Its distribution is concentrated in holes A-C, and is fairly evenly spread around the circle. Beaker pottery is exclusive to rings A-C, coming from surface deposits to deposits 2' deep within the posthole. The sherds from A60 and B6 are from all-over-cord vessels, C13 is all-over-comb, C9 comb decorated, and C5 (this sherd is labeled "from hole C2") had fingernail impressions. These would all belong to the "early" type.

The flint finds also appear to be spread fairly evenly around rings A-C, but are concentrated to the south in rings D-F. The distribution of flint "tools" (saws, scrapers, arrowheads), and of "exotics" such as chalk axes, polished stone axes, or *echinus* shells is weighted towards holes A-C.

On the basis of the evidence presented, the following general conclusions about activity on the site can be drawn:

1. There was pre-henge activity on the site, represented by holes 1-6, and j. These holes produced very similar deposits to, and may be associated with, the Grooved Ware, "plain bowl" and "early" beaker deposits under the henge bank.
2. The circles A-C appear to be markedly different in construction and function to those of D-F. The alignments of the two groups differ, the circles A and B mark the entrance of the henge ditch and bank, while circles D-F do not (and are not aligned on the entrance). Pottery, flints and "exotic" items appear to be concentrated in circles A-C, and distributed evenly around these circles. Finds in circles D-F appear to be concentrated in the south sector.

3. It is possible that the coarse chalk rubble of the basal ditch fill is the result of cleaning and (back)filling activity; the greater quantity of rubble in the outer ditch angle would tend to support this conclusion. The dates of BM 677 and BM 678 would then refer to the modifications at this stage, and not necessarily to primary construction. "Early" beaker pottery first appears in layer 6a, just under the lowest turfline, also under the bank and in the upper part of postholes A-C. These deposits may all belong to one phase of "final" Late Neolithic-Early Bronze Age modification, involving recutting of the ditch and piling of the bank (thus incorporating beakers in the ols), and deposits in the tops of the postholes of rings A-C, perhaps in a fashion similar to that at North Mains, Strathallen [see pp. 251]. The lack of beaker deposits in the upper layers of rings D-F may indicate that these rings still held posts at this time.
4. The implication of the above is that the site had at least two pre-Roman phases:
 - a1. associated with Grooved Ware; ditch and bank and probably circles A-C, which may be related to BM 677 and BM 678
 - ?a2. circles D-F constructed (post 1800 b.c.)
 - b. associated with "early" beaker; ditch recut and ?bank re-piled, deposits in the tops of postholes A-C, timber posts in circles D-F.
5. Comparisons with Durrington Walls, where the bulk of the beaker pottery is of later type, are interesting. Phase 2 activity at Durrington (Northern and Southern circles, phase 2, and possible ditch recut) would appear to be roughly concurrent with phase A (above) at Woodhenge, on the basis of radiocarbon dates.

Again the beaker, although "middle" type at Durrington, came from the upper levels of the postholes (post-dating the circles) and from the "terminal" Late Neolithic levels of the ditch. It is possible that these deposits are contemporary with phase B (above). It is interesting, therefore, that one site should choose "early" beaker types, the other "middle," for contemporary, and similar, activities.

Mount Pleasant, Dorset

Excavations were carried out on this class I henge within a "great earthwork enclosure" by G.J. Wainwright between 1970-71. The site consisted of a ditch and external bank, with four entrances, in the north, east, south-east and south-west. The north and west entrances were discovered by geophysical survey, as were Site IV, a class I henge with timber post and stone settings, in the south-west quadrant of the site interior, and a palisade trench, concentric to the main ditch.

During the excavations, sections were cut across the bank (trenches 31-33), the bank and ditch at the south-west and north entrances (trenches 1-2, 9, 11, 27-30), and the palisade trench (trenches 3, 5-8, 12-25, 34-45). Site IV was excavated in its entirety. A total of 4130 sherds of pre-Iron Age pottery were recovered; 391 sherds (9.5%) of "plain bowl" Neolithic wares, 657 (16%) Grooved Ware, 1695 (41%) beaker, 781 (19%) "Bronze Age" and 591 (14%) unidentified. Beaker pottery was recovered from:

1. Site IV; posthole 75 and the ditch
2. Enclosure ditch; a)western entrance (trenches 1-2),
b)northern entrance (trenches 27-30)
3. Palisade trench

Site IV was located on the highest part of the hill, between the 77m - 79m contours, and had suffered considerably from erosion. "...ploughsoil was removed by machine to within a few centimetres of the chalk bedrock...." [Wainwright, 1979: 9], over the entire surface of the site. The chalk surface was scored by modern plow marks, "...which were clearly destroying the structural evidence and had in fact removed some postholes...." [*ibid.*] There was no sign of the bank,

although Wainwright postulated that it must have been external to the ditch. Only the bases of the postholes appear to have survived.

Wainwright divided Site IV into three structural phases:

1. phase 1; construction of the ditch and bank, with an entrance to the north. erection of the five rings of timber posts (A-E).
2. phase 2; when the ditch was 1/3 full, timber rings replaced by a stone "cove" structure.
3. phase 3; Iron Age activity, hut and pits, followed by a rectilinear enclosure of Roman date.

According to Wainwright, phase 1 construction on site IV included the erection of five concentric rings of postholes [op. cit., fig. 7]. These rings were associated with the phase 1 ditch, which was dated to 2038 ± 84 b.c., 1991 ± 72 b.c., and 1961 ± 89 b.c. (BM 667, 666 and 663, on animal bone, antler and charcoal) from layer 10, segment VII. Grooved Ware pottery was recovered from fourteen of the postholes, mostly from postholes 72-83. Sherds identified as undecorated beaker came from posthole 75, and "Bronze Age" sherds from postholes 52 and 128.

Only two of the postholes (ring A, 5 & 19) showed any evidence of "post-pipes," and of these two, the section of 5 is unpublished, and that of 19 somewhat unconvincing. It is difficult to judge when only the bottoms of the postholes remain, but it would appear from the disturbed nature of the fills that the posts were removed, rather than allowed to decay in place. If this was the case, the location of the finds may not be indicative of their original positions.

The phase 2 structure consisted of a central setting of pits with sarsen monoliths, in the form of a "cove" structure, with two (of four original?) "outlying" stones, at the north and west points within the ditch. This phase was, according to Wainwright, contemporary with the secondary silts (the "pale loam") of the ditch, dated to 1680 ± 60 b.c. (BM 668, charcoal). Twenty-five sherds of Grooved Ware were recovered from stone hole 191, the west "outlying" stone. Again, only the bases of the holes remain.

The correlation between the stone setting and the middle ditch silts is based on the "...extensive spread of ash and charcoal, fresh sarsen flakes, stone mauls, flint artefacts, animal bones and numerous sherds of beaker pottery..." [Wainwright, 1979: 28] at the bottom of layer 5 in the ditch silts. It is interesting in this respect that no beaker pottery was recovered from the stone holes (although Grooved Ware was). Beaker pottery was recovered from the phase 1 postholes, however.

The Site IV ditch was circular, with a single entrance "...facing in the direction of the contemporary north entrance into the main enclosure..." [Wainwright, 1979: 10]. The ditch deposits were divided by Wainwright into primary, secondary and tertiary fills. The primary fills, layers 7-11, were of coarse chalk rubble. The secondary fills consisted of layer 6, a "buried soil" and layer 5, the pale loam, which contained a thick deposit of ash, charcoal and artefacts. A hearth from the surface of this deposit (layer 5, segment VIIIA) provided a radiocarbon date of 1324 ± 51 b.c. (BM 669). The tertiary silts were layers 3-4, the upper "buried soil," and layer 2, the

ploughwash. These silts were associated with Iron Age and Romano-British pottery.

1160 sherds of pre-Iron Age pottery were recovered from the ditch silts; 13 "plain bowl" Neolithic (1%), 97 Grooved Ware (8%), 862 beaker (74%), 106 "Bronze Age" (9%), the rest unidentifiable. "Plain bowl" wares came from layers 6-10, Grooved Ware from layers 2-10, beaker from layers 2-8, and "Bronze Age" from layers 2-6 [§see table 25, pp. 498].

In order to understand the sequence of events connected with the site IV ditch, it is first necessary to establish a layer correspondence for the ditch stratigraphy [§fig. 24, pp. 498].

Longworth, in his analysis of the deposits from the site IV ditch, suggested that the primary fills were associated with Grooved Ware. Two beaker sherds were also recovered from the primary fills, from segment XII, layer 7. The sherds recovered were a paired-cord all-over-cord vessel (a very unusual decorative technique) and an undecorated vessel, with an "early" style rim. Neither of these vessels would be out of place in Grooved Ware contexts dated c. 2000 b.c., however Longworth stated that "...since the secondary silts in segment XII showed extensive rabbit disturbance, it seems highly likely that the sherd...is not *in situ* but derived from the upper level..." [Wainwright, 1979: 75], and their context must therefore be considered somewhat uncertain. The secondary silts contained a variety of beaker styles, particularly in segment XIII, layer 5, where AOC, E, W/MR, N/MR, S₄ and fingernail/fingerpinch vessels were represented. Segment X, layer 5 produced AOC, N₁/D, and S₂, S₃, S₄. These were associated with Grooved

Ware, "plain bowl" Neolithic wares, Food Vessels and Collared Urns, at a radiocarbon date centering on c. 1680 b.c. The tertiary silts also contained a mix of beaker styles; AOC, W/MR and S₄, with Food Vessels and Collared Urns (and some Grooved Ware), at a date of c. 1325 b.c.

This generalization of associations may be somewhat misleading. Pottery deposits, and particularly beaker pottery deposits are not distributed evenly around the ditch sections; the majority of finds are concentrated in the north-west quadrant of the site, and in particular in segment XIII, the north-west ditch terminal. The beaker deposit from layer 5, segment XIII, represents over half the total pottery from the site IV structure. Segments Xa and XI also have sizeable deposits, c. 100 sherds total, but the remaining sections contain no more than thirty-five sherds, many only a dozen. This might suggest that whatever activity was associated with pottery deposition, and particularly beaker pottery deposition centred on the north-west side of the site. The large proportion of vessels either incomplete, or represented by only a single sherd may suggest that "dumping" of beaker sherds, already broken and collected from elsewhere, was taking place.

Examination of the identifiable beaker pottery would suggest that while there are some "later" forms present, they are a very small minority of the styles represented, and occur only in segments XIII, layers 4-5, and X, layer 3 (in the upper levels of the deposit). The great bulk of the beaker represented is "early" in style, with all-over-cord and all-over-comb predominating at all levels (and "early" styles only in the "primary" layers). Segment XIII may be somewhat

suspect; the section drawing shows large areas of disturbance, extending at one point through layers 4-7. This may account for the recovery of Iron Age sherds from layer 6. The "later" beaker is represented by five vessels: "middle" beaker P167 from XIII, layer 5, and "late" beakers P162, P163, XIII, layer 5, P160, XIII, layer 4, and P165, X, layer 3. Layer 3 is part of the tertiary fills, which also contain Iron Age deposits; these are generally in layers 2-3, but extend to layer 4 in segment V. This segment is interesting, as its section appears to show recutting of layer 5 by layer 4. In a few instances Grooved Ware and Food Vessels/Collared Urns are stratified together: segment I, layer 3, segment VII, layer 3, segment IX, layer 5, segment IXa, layer 2. Examination of the number of sherds per layer reveals that the greatest proportion (70%) were recovered from layer 5, the top of the secondary silts (the last pre-Iron Age layer). Taken together with the distribution of Late Neolithic and particularly Grooved Ware sherds, and the nature of the ditch fills (coarse chalk rubble base followed by a thick "occupational" deposit), it would be not unreasonable to interpret this sequence as at least one episode of cleaning/recutting/refilling (coarse chalk rubble), followed by additional refilling, possibly by dumping (layers 5 and 6), or of material from elsewhere. This means, of course, that radiocarbon dates BM 668 and BM 669 can have no significance. Layer 5 would appear to be the culmination of these modifications in the Late Neolithic-Early Bronze Age period, although further activities in the layers above may be blurred by Iron Age interference.

Excavations of the enclosure ditch took place in the areas of the west and north entrances. Western entrance cutting I was made across the bank and ditch,

cutting II across the ditch terminals and the entrance causeway, which was 5m wide at this point. In cutting I, the soil was removed by hand, while the ploughsoil from cutting II was removed by machine. The ditch in this area was found to be extremely irregular, formed from a series of intersecting pits.

The sequence of layers [table 26, pp. 499] in the west ditch terminals was a "primary fill" of coarse chalk rubble (layers 6-7), overlain by a weathered horizon or buried soil (layers 4-5), over which was a thick aeolian sediment (layer 3). Above this (layer 2) was the ploughsoil. In sections C and D [Wainwright, figs. 23-24], a "fine dirty silt" (layer 8--?the original primary silt) underlay layer 7. Two antler picks, from the south and north terminals, layer 8, produced radiocarbon dates of 1778 ± 59 b.c. (BM 646) and 1784 ± 41 b.c. (BM 645).

An axe with rain-pattern decoration was discovered in layer 10, section D (north terminal). While the silting pattern of the east edge of the ditch, section D, differed from the west edge, Wainwright felt that the east deposits, layers 4, 9-12, "clearly equate" to layers 4-8 of the west deposits. This would equate layer 10 with layer 6, in the primary silts, but post-dating BM 645-6.

Sherds of "plain bowl" Neolithic wares and Grooved Ware were recovered from layer 6, Grooved Ware and beaker from layer 5, and "Bronze Age" sherds (Collared Urns) from layer 4. In the Ditch Terminal Pit (DTP, cutting C), Grooved Ware was recovered from layer 6, "plain bowl" Neolithic ware from layer 5, and "middle" beaker from a hearth pit, layer 3. This pit produced a radiocarbon date of 1460 ± 131 b.c. (BM 664).

At the North Entrance (cuttings 27-30), cutting 27 was made across the east ditch terminal of the north entrance, cuttings 28, 28/29, 29 and 30 across the west ditch terminal. The entrance causeway was 40m wide at this point. The stratigraphy of the west terminal was again a primary fill of coarse chalk rubble (layer 11), followed by a buried soil (layer 10) similar to layers 4-5 of the west entrance, an aeolian deposit (layers 7-9) and ploughwash (layers 2-6). The stratigraphy of the east terminal was more complex. "...indicate that the ditch is extremely irregular and comprises a series of broad shallow bays...no complete section was obtained across the ditch at any point..." [Wainwright, 1979: 42]. A series of stake holes and two grave pits had been cut into layers 8-10, of section 28/29. The earliest silting of the ditch was a coarse chalk rubble (layers 11-12), which produced radiocarbon dates of 2098 ± 54 b.c. and 2108 ± 71 b.c. (BM 793, BM 792, charcoal). Above this was a layer of chalk and clay, very similar to layer 10, section D, west entrance. A charcoal sample from layer 10, north entrance, produced a radiocarbon date of 1941 ± 66 b.c. (BM 791). This layer, and layer 9, could be equated to the "buried soil." These layers were overlain by the aeolian deposits, layers 4-8. Charcoal samples from layers 6-8 provided the following dates: layer 8, 1669 ± 55 b.c. (BM 790), layer 7, 1509 ± 53 b.c. (BM 789), layer 6, 1556 ± 55 b.c. (BM 778). Above the aeolian material was the ploughsoil (layers 2-3).

A correspondence table for the layers of the north entrance, north and south ditch terminals and the west entrance, east and west ditch terminals is given in table 26 [op. cit.]. This table identifies some severe chronological problems, which Wainwright and Evans

attempted to rectify by re-equating layers 4-5 of the west entrance with layers 7-8 of the north entrance. They also suggested that the difference in age between the primary silts of the west entrance and north entrance, a gap of c. 300 years, was due to recutting of the west ditch terminals c. 1800.

Examination of the sherd material may suggest another possible solution. In cuttings 28, 28/29, and 29, Grooved Ware sherds come from layers 6-12, beaker from layers 6-10, and "Bronze Age" pottery from layers 3-8, and 10. Iron age sherds were recovered from layers 3-4, and also from layer 7, section 29. "Plain bowl" Neolithic ware was recovered from as high as section 28, layer 3. Beaker sherds P188-90, representing one "late" vessel, were recovered from layers 6/7, 8, 9, and 10. Another vessel was represented by sherds from layers 3, 8, and 9. In his examination of the pottery from the northern entrance, Longworth concluded that

...unfortunately, some doubt must be entertained regarding the detailed occurrence of pottery from Cuttings XXVIII, XXVIII/XXIX and XXIX within layers (10) to (6)/(7)...since these layers do not appear to represent a single short-lived event, the sherds must be derived but it is now impossible either to reinterpret the evidence to discover the parent layer or to define the area of disturbance involved.... [Wainwright, 1979: 83]

It seems likely that at least one recut, from layer 6 and extending to layer 10, occurred, and probably several others (e.g. possible Iron Age, involving layers 3-8) This would affect dates BM 788-91, from the north entrance, east terminal (layers 6, 7, 8 and 10). The radiocarbon dates from these layers must be suspect, and it is therefore no longer necessary to

adjust the stratigraphic sequence to fit the chronology.

The second aspect to consider is the possible recutting of the west entrance, involving the narrowing of the entrance causeway from an unknown, but presumably similar width to the north, and south causeways (c. 30m), to 5m. If the interpretation of recutting is correct, then the fill of the ditch terminals may well have been derived, or contaminated with earlier material, at a date presumably relating to the deposition of the antler pick on the ditch floor (1784 ± 41 b.c. BM 645, 1778 ± 59 b.c., BM 646). It is interesting to note, in section D [op. cit., fig. 24] of the west entrance, the juxtaposition of layer 3 and layer 8, throughout the central part of the ditch. This may possibly be indicative of later activity (cleaning or recutting) within the ditch, presumably at a date similar to layer 3, section C (1460 ± 131 b.c., BM 664). This date is associated with two step 4 beakers (and may also correlate to the layer 6-10 recut of the North entrance).

The majority of the ditch deposits are not particularly informative. The great bulk of the material consists of very small sherds, a number (perhaps as much as half) of which are undecorated, and those with decoration frequently unassignable to any particular step or tradition (again, this may be dumped material). Clarke's "fingernail" and "fingerpinch" styles are common decorative techniques on the pottery from the north entrance, at all layers, found frequently with what appear to be food vessels bearing cord decoration. Of those vessels which can be assigned, the majority appear to be of "middle" or "late" type; there is almost nothing which could be

attributed to "early" beakers. Considering the disturbed state of the ditch silts, it seems unlikely that the rain-pattern axe, whose position in the stratigraphic sequence Wainwright was anxious to fix, can be related to any of the existing radiocarbon dates.

The palisade trench runs parallel to the main enclosure ditch, with narrow entrances to the north and east. These entrances were marked by massive timber posts, set close together, with an entrance gap of c. 70cm. The palisade was excavated in a series of 5m trenches, laid out at 20m intervals. In most of the trench section post-pipes could be seen, some of which had burnt, others which had decayed *in situ*. Charcoal from the tops of the post-pipes [op. cit., fig. 34] in section 3, layer 3, opposite the west entrance, produced a radiocarbon date of 1695 ± 43 b.c. (BM 665). An antler pick from the same level produced a date of 1687 ± 63 b.c. (BM 662). Wainwright related both these dates to the construction of the palisade.

In sections 14, 18, 20-1, 23 and 25 the stratigraphy was considerably disturbed and disrupted. Wainwright interpreted this as the result of the removal of posts for re-use. Bulked charcoal from layers 3-6, section 18, produced a radiocarbon date of 2006 ± 45 b.c. (BM 794), which Wainwright suggested resulted from contamination with earlier material.

Of the 650 identifiable sherds recovered from the palisade trenches, 550 (85%) were beaker, 55 (8.5%) Grooved Ware, 33 (5.0%) "Bronze Age," 6 (0.9%) Peterborough Ware and 6 (0.9%) "plain bowl" Neolithic.

...the majority of finds were in a weathered condition and obtained from the top of the palisade trench (layer 3) where they had presumably accumulated when the palisade was standing... [Wainwright, 1979: 52-3].

The majority of the pottery finds were derived from section 3, layer 3, including 511 of the 550 beaker sherds. Also from this layer came "plain bowl" Neolithic ware, Peterborough Ware, "Bronze Age" and Romano-British pottery. The only deposits possibly associated with the construction of the palisade, from the packing (layer 4) around the post-pipes, were sherds of Grooved Ware and beaker recovered from sections 13 and 17.

As with Durrington Walls, discussed earlier it is possible that these mixed deposits in layer 3 are the result of post-palisade reuse, possibly involving recutting of the tops of the postholes [see particularly sections III, XII and XIV, fig. 34]. The deposit in section III is particularly interesting [see fig. 46, pp. 560]--the combination of charcoal, pottery and other artefacts is very similar to the deposits at North Mains (already mentioned). Considering this, it seems unlikely that BM 665, from this deposit, can be used to date the construction of the palisade.

The beaker assemblage from the palisade trench is primarily "early" types; all-over-comb, comb-zone, finger-nail decoration, stab impressions, and some W/MR motifs (similar to Site IV). Only two sherds appear to represent vessels from the "middle-late" types: P173 from section 23, layer 2, and P176, section 24, layer 2. Several vessels from trench 3 are represented by a group of sherds. In the reconstructable cases, rims seem to be the more common survivals.

One further point of interest to note is the distribution of timber post "destroyed by fire", "removed" and "decayed *in situ*." The majority of post were burnt; those which appear to have been removed or allowed to decay concentrate in the north sector of the site, between trenches 14 and 25.

In his discussion of the site evidence, Wainwright suggested the following sequence of events to explain the activities at Mount Pleasant:

1. Pre-enclosure settlement, associated with "plain bowl" Neolithic wares. Date for ols under enclosure bank, west entrance, is 2122 ± 73 b.c. (BM 664).
2. Phase I, c. 2000 b.c. Earthwork enclosure excavated, with bank and ditch. Site IV bank and ditch constructed and timber circles erected.
3. Phase II, c. 1800 b.c. West entrance terminals extended/modified. Conquer barrow constructed.
4. Phase III, c. 1700 b.c. Palisade constructed. Site IV timber circles replaced with stone cove.
5. Phase IV, date unknown. Palisade destroyed by burning.

Considering first Site IV; the ditch, timber and stone settings, it would seem fairly clear that BM 663, 666-7, 2038 ± 84 b.c., 1991 ± 72 b.c., 1961 ± 89 b.c., associated with Grooved Ware, and possibly "early" beaker, relates to the "final Late Neolithic" cleaning/recutting phase, before the ditch was filled, or refilled with chalk rubble. It is not clear, however, when the timber circles, or the stone setting, were erected. The stone setting is tentatively dated to 1680 ± 60 b.c., on the grounds of the appearance of sarsen chips at this level of the ditch fill (sarsen chips in fact appear from this level upwards). The stone setting is associated only with Grooved Ware,

while Grooved Ware, beaker and "Bronze Age" sherds were recovered from the postholes. On this basis, one might suggest that the stone setting is at least contemporary with, if not earlier than, the timber circles. It is reasonable to assume, however, that the erection of the stone cove is related to the activities of layer 5 of the ditch (through the sarsen chippings), and on parallels from other sites (for instance Woodhenge) that this setting post-dates the timber circles. No further absolute dates can, however, be provided.

The northern entrance of the main enclosure ditch (and by implication the ditch as a whole) appears to have been recut c. 2000 b.c. (BM 792-3), contemporary with the site IV ditch, which faces it. Both are associated with Grooved Ware in their "primary" silts. The west entrance ditch terminals are interpreted as being extended c. 1800 b.c. (BM 645, BM 646). The west entrance may have been further modified (recut, cleaned) at a later period, resulting in the juxtaposition of layers 3 and 8, perhaps at a date approximating BM 664, 1460 \pm 131 b.c. The palisade was presumably constructed prior to this date, with entrances to the north and east (matching the north and east main enclosure entrances), and probably contemporary with the main ("Great") enclosure and Site IV. It would not be unreasonable to see the construction of the palisade as contemporary with the timber circles. The major concentration of beaker pottery in the palisade occurs in section III, opposite the main enclosure west entrance, and almost certainly these two are connected; part of one phase of activity, and possibly also concurrent with the erection of the stone settings at Site IV. It is interesting to note that the beaker pottery associated with the main enclosure ditch is of "middle" or "late" type, while

the majority of beaker material from the palisade trench is "early" in type. This differs again from site IV, which has "early" beaker, but with a substantial all-over-cord component lacking in the palisade trench. It is unfortunate that the stratigraphy for the north entrance is poor; no light can be shed on whether the "early" and "middle-late" types were co-existing (which is possible), or whether the "middle-late" types were stratified higher in the main enclosure ditch silts, as they appear to have been in the palisade trench and site IV ditch [§see table 27, pp. 499].

Finally, the tendency for concentration of pottery, and finds of all types, on entrance causeways, should be noted. The two largest concentrations of pottery on the site are from site IV, section XIII, the west ditch terminal, and the palisade, section III, opposite the west entrance. This may suggest that this entrance still had a significant role within the monument, to the extent that it appears to have been blocked, perhaps in a fashion similar to chambered tombs (?section III deposit simulating beaker deposits in entrance blocking). The following revised sequence can be suggested:

1. phase 1; construction of ditch and bank, main enclosure and Site IV, erection of timber circles and palisade.
2. phase 2; cleaning/recutting/refilling, c. 2000 b.c., associated with Grooved Ware and possibly "early" beaker (?erection of timber circles and palisade).
3. phase 3; recutting phase, c. 1800, (?main enclosure ditch) ditch, Site IV. western ditch terminals modified ("blocked"), tops of postholes in palisade recut and refilled (layer 3), timber setting replaced with stone setting, associated with "early" beaker.

4. phase 4; recut, main enclosure ditch, associated with "middle" and "late" beaker.

Gorsey Bigbury, Somerset

Gorsey Bigbury is a class I henge, with an external bank and entrance to the north. It was completely excavated by Jones *et. al.* between 1931-1934.

Clearing of the central area of the henge revealed no internal structures. Trenches across the bank indicated that it was stone built, with some kerbing. A further trench laid across the entrance by Tratman in 1965 revealed two postholes outside and aligned with the ditch terminals, which possibly held timber posts. These areas produced almost no artefactual evidence.

The bulk of finds came from the ditch, which was cut into limestone, and very irregular in shape and depth. The stratigraphy of the ditch was as follows:

1. sub-soil, with some stone.
2. occasional beaker and post-beaker finds.
3. top of beaker deposit.
4. "main occupation level," with considerable rubble in the outer half (this is marked as a separate layer on the section drawings), marked concentration of finds at bottom of this level, which form a "black band" several inches thick.
5. clay silt.

A considerable quantity of pottery, along with other finds, were recovered. This was primarily of beaker type, but included sherds of Peterborough Ware, "Bronze Age" urns, a "plain bowl" Neolithic rim and Romano-British ware. Pottery was recovered from layer 4 upward, with the exception of a beaker sherd found with a double burial on the ditch floor, in the north-west section, adjoining the causeway. This was of a male and female, with bone pins, bone scoop, flint knife and

barbed-and-tanged arrowhead. The burial appeared to have been disturbed at a later stage, according to ApSimon's reassessment [ApSimon, 1976: 170]. A second "burial" was also uncovered, in section 1, to the north-east of the causeway [marked with an "S" on the section plan, Jones, pp. 10, fig. 5]. This was a disarticulated deposit of a female and child.

In 1973, a series of samples of charcoal and animal bone were submitted for radiocarbon dating, taken from "the unidentifiable material from the occupation deposit..." [ApSimon, 1976: 157]. These produced dates of 1713 ± 61 b.c. (BM 1086), 1652 ± 71 b.c. (BM 1087), 1850 ± 74 b.c. (BM 1088), 1832 ± 62 b.c. (BM 1089) for the charcoal, and 1716 ± 113 b.c. (BM 1090), 1656 ± 67 b.c. (BM 1091) for the bone. These dates overlap within one standard deviation, and would suggest that the "occupation deposit" dates to between 1850-1650 b.c.

There are several difficulties with the evaluation of the site evidence. The site records, and many of the artefacts were destroyed during World War II, while other finds have become separated from their descriptions. Further, the published sherd lists do not match with the sherd numbers, making identification of sherds almost impossible. It is clear, also, that the published sherds represent only a fraction of the total number recovered, and that their distribution cannot be taken as indicative of the distribution of the whole.

Bearing the above in mind, it is noted that all the beaker pottery from the site appears to be of steps 5-6, and possibly 7; of predominantly "middle-late" type. The range of styles is narrow, being almost entirely

confined to Clarke's types S_1 to S_4 , with an element of rusticated wares. Sherds of individual vessels, as well as can be determined, are derived from throughout the "occupation band", often separated from each other by some distance,

...the wide horizontal and vertical dispersion of sherds from the same pots suggests that much of the deposit derives from random dumping over a prolonged period... [ApSimon, 1976: 170].

The distribution of material does not appear to be entirely indiscriminate, however. Jones noted the concentration of finds in the north-east section of the site, which he postulated was the location of the beaker settlement "living area" [Jones, 1938: 9], while the north-west section, where the burials were discovered, produced "no evidence of occupation" [Jones, op. cit., 13].

Also to be noted is the degree of "completeness" of the vessels, a high proportion of which are reconstructable. It would suggest that the pots had gone into the ditch broken but complete, deposited, perhaps, shortly after breakage.

The narrow range of type and style of beaker pottery, and of vessel forms as a whole, coupled with the narrow range in radiocarbon dates, the general completeness of the vessels, and the distinction between the "burial area" to the north-west and the "occupation area" to the north-east would seem to indicate that, rather than an occupation site, Gorsey Bigbury was a "ritual" area, of fairly short duration, whose activities included the breaking and depositing of fine beakers, perhaps, as has often been suggested at other sites, in some sort of feasting. This

explanation would accommodate the animal bone evidence, which indicated a high proportion of young (food) animals. Many of the bones have "butchery" marks [see ApSimon, 1976: 169].

There is some question as to the initial stratigraphic sequence of the ditch. Jones suggested that the rubble in layer 4, at the bottom of the beaker occupation, was a deliberate attempt to create a level "living" platform [Jones, 1938: 10]. This was reinterpreted by ApSimon as bank slip, and thought by him to be contemporary with the layer 5 clay silts, rather than layer 4 [ApSimon, 1976: 169]. In all cases the layer 4 "occupation" level appears to rest on the rubble fill. If this interpretation is adopted, then the following sequence of events can be suggested for the henge:

1. ?pre-henge activity; represented by a sherd of "plain bowl" Neolithic ware.
2. excavation of ditch and building of bank, probably with two timber posts marking the entrance.
3. "primary fill" accumulation, represented by layer 5, and the rubble fill from layer 4 [see Jones, 1938, sections 1, 3, 4]. ApSimon felt that the female and child burial in the north-east section were to be associated with this layer. There appear to be no 'datable' finds (i.e. pottery) associated with this layer, although the site records are not clear on this point. A small quantity of Peterborough Ware was recovered from the site (c. 5-10 vessels), however, it would appear that this material was all derived from the secondary fill.
4. secondary fill accumulation, represented by layer 4 and possibly 3. this is the primary "occupation" deposit, of beaker pottery, flints and animal bone, which appears to be connected with the main use of the site. radiocarbon dates suggest a use period c. 1850-1650 b.c. this deposit is possibly associated with the male and female burial in the north-west section of the ditch.

5. tertiary fill accumulation, represented by layers 1-2, and possibly 3. beaker and post-beaker deposits.

Avebury, Wiltshire

A class II henge monument, with external bank and four entrances, north, south, east and west. In the interior of the bank and ditch are a main ring of standing stones, the Outer Stone circle, aligned along the enclosure ditch and enclosing two smaller rings; the Northern and Southern Inner circles. Exterior to the main enclosure, pairs of standing stones form the West Kennet Avenue, leading from the southern entrance of the Avebury henge to the timber circles of the Sanctuary on Overton Hill. There are also the possible remains of a second avenue, the Beckhampton Avenue, to the west, and recently, documentary evidence has been discovered indicating a third avenue approaching from the north⁶¹.

A series of excavations have been carried out at the Avebury henge, the most substantial of which are those by H. St. George Gray [1908-1922] on the bank, ditch, and southern entrance causeway, and by A. Keiller [1934-9] on the Outer Circle, Southern Inner Circle, and the West Kennet Avenue.

Beaker pottery was recovered from the following areas:

1. The ditch, section IX [Gray, 1922].
2. The Outer Circle, stone holes 41, 45, and 46.
3. The Southern Inner Circle, hole D.
4. West Kennet Avenue, stones 25b, 29a.
5. West Kennet Avenue, "occupation site," pit 1.
6. Beckhampton Avenue, "Adam" Longstone [Cunnington, 1913].

⁶¹R.J. Mercer, pers. comm.

The majority of finds of all types were derived from the "occupation area", located between stone pairs 27-32 of the West Kennet Avenue [see Smith, 1965, fig. 71]. This site produced over 1000 flint artefacts and c. 600 sherds of pottery, mostly Peterborough Ware. The only other significantly sized find of artefacts were red deer antlers, apparently used as picks, from the henge ditch. Smith concluded that "...the extraordinary paucity of finds within the Avebury circles indicates that this temple was deliberately kept clean..." [Smith, 1965: 251].

Smith postulated the following sequence of events for the site:

1. Earliest "occupation" at West Kennet Avenue, with Peterborough Ware/Grooved Ware. Antedates construction of avenue, c. 2000 b.c.
2. Construction of West Kennet avenue, contemporary with beaker graves, stones 25a, 29b, c. 1850 b.c. Construction of ditch, bank, Outer Circle and Inner circles.
3. Secondary silting of ditch, with sherds of "necked" (middle-late) beaker and Collared Urns, c. 1600 b.c.

Smith considered stone hole A the only possible pre-henge feature. Located near stone 46 of the Outer Circle, its size and proximity to stone 46 suggested to Smith that it was removed before stone 46 was erected [see Smith, 1965: 203].

Excavations were carried out by H. St. George Gray between 1908-1922, consisting of ten trenches; I-III, VIII and IX across the ditch, X across the bank, and IV-VII across the southern entrance causeway. Gray recorded no finds from the causeway, but the old land surface under the henge bank produced "plain bowl" Neolithic, Peterborough and Grooved Wares.

Medieval and Romano-British pottery and other artefacts came from the upper layers of the ditch, while "Late Neolithic" wares were recovered from the lower silting and chalk rubble. "...the coarse Bronze Age type of ware...survived into Roman times, and is occasionally found with roman sherds..." [Gray, 1934: 112]. The general sequence of the ditch was as follows:

1. turf.
2. surface silting.
3. mixed silting.
4. fine mixed silting.
5. chalk rubble.

The chalk rubble layer made up the bulk of the ditch silts in any cutting [§see fig. 47, pp. 561]. "...all sherds from the primary silting are identical in character with those from beneath the bank..." [Smith, 1965: 228-9], and included (undecorated) Peterborough and Grooved Wares, and "plain bowl" Neolithic pottery. At the junction of the chalk rubble and "fine mixed silting" or "mixed silting" in cuttings VIII and IX areas of "dark mould" with charcoal and other evidence of burning were found. These patches produced sherds of beaker (cutting IX) and ?Primary Collared Urn [Gray, 1935, fig. 7.167; re-identified by Smith, *ibid.*]. The beaker sherds were identified as a "Long-Necked Beaker" by Smith [*ibid.*], and therefore of "middle-late" type; they are, however, very small, so a positive identification cannot be made.

The lower part of the mixed silting produced a number of sherds of "Bronze Age" type, [Gray, 1935, fig. 6.123, 252, fig. 7.210] along with a plano-convex knife [Gray no. 177], from cutting IX. This layer also produced a burial, in the eastern ditch terminal of the

southern entrance. A contracted skeleton of a female was interred in a ring of sarsen stones, with a chalk ball, flint core and flakes, and sherds of two vessels, identified as Peterborough Ware by Gray, but re-interpreted as "Bronze Age" by Smith.

The upper mixed silting produced sherds of Romano-British pottery in all cuttings, with a fibula (Gray no. 162) in cutting VIII. The uppermost layers contained artefacts of Medieval type. The layers, as described and depicted by Gray, indicate no recutting or other disturbance of the layers, and his distribution of artefacts would suggest an initial rapid silting consisting of the primary chalk rubble, which "...may have been deposited in the course of a very few years..." [Gray, 1934: 136], associated with "plain bowl" Neolithic, Peterborough and Grooved Wares, followed by a gradual silting of the secondary 'mixed silting', first with "middle-late" beaker, Collared Urn and other "Bronze Age" wares, later with pottery of the Romano-British period.

The Outer Circle, excavated by Keiller between 1937-9, consists of approximately 98 stones, of which nineteen remain. A great many of the missing stones were broken up and incorporated into boundary walls; others, such as 41-2, were buried, perhaps during the Medieval period. The stone can be divided into 'A' ('tall' and 'thin') and 'B' ('short' and 'fat') types. In the West Kennet Avenue, the 'A' and 'B' stones are paired. No regular pattern can be discerned in the placement of 'A' and 'B' types of stones in the Outer circle, with the exception of those at the northern and southern entrances causeways, where the stones are of 'B' type [Smith, 1965: 197]. It is interesting to note, however, that the spacing of the stones does not

appear to make any adjustments of spacing with respect to the entrance causeways [Smith, op. cit., 196].

The only pottery from the stone holes of the Outer circle were sherds of undecorated beaker, from above (Smith's emphasis) the packing stones in stone holes 45 and 46, at the northern entrance. Two undecorated base sherds from stone hole 41 accompanied three skull fragments, and may have represented a burial, destroyed when this stone was overthrown and broken up. Smith identifies all these sherds as belonging to "Bell Beakers" [Smith, op. cit., 227].

The Southern Inner circle, excavated by Keiller in 1939, had a diameter of c. 240', set with approximately 29 stones, of which five remain. Interior to this circle were a number of stake-holes, stone holes and pits, including a ?rectangular arrangement [see Smith, fig. 69], made up from stone holes i-xii. Sherds of "plain bowl" Neolithic and Peterborough Wares were recovered from stone holes 104-6, i, iv, viii and ix. A sherd of beaker/Grooved Ware was recovered from a stake-hole adjoining stone hole D [see Smith, fig. 68], however, this feature cannot be related to any structure on the site.

The Northern Inner circle is unexcavated, but is estimated to have had c. 27 stones originally, with a "cove" structure in the centre. Four of the stones from the circle, and two of the "cove" stones are remaining.

In 1964, a trench cut for a water pipe revealed the existence of a second circle within the Northern circle, consisting of c. 12 stones, of which F and G

[Smith, fig. 70] are two. No datable finds were recovered from this trench.

The northern third of the avenue was excavated between 1934-5, and 1939 by Keiller and Stuart Piggott, while the West Kennet end was investigated by W.E.V. Young, 1957-60. The Keiller/Piggott excavations consisted of two parallel trenches, 20' wide, along the line of the stone rows.

Graves were discovered at the foot of or underneath stones 18b, 22b, 25b, and 29a, and possibly 5a. The burial under stone 22b was a contracted inhumation of a male, with a Grooved Ware vessel or "Dorset bowl" [P352, fig. 78]. Bones of two adolescents and an adult were interred with a beaker (P351) of step 4/"middle" type, below stone 25b, and an adult male was buried with a maritime beaker (step 1/"early) in stone holes 29a (P350).

Other beaker sherds were recovered from above the packing stone in stone holes 12a, 33b and 36a. The sherd from 33b was decorated with stab impressions, that from 36b was similar to the sherd recovered from pit 1 in the West Kennet Avenue "occupation site." Further sherds of beaker were recovered from Keiller's cuttings IV, VIII, IX, and X (Smiths's stone pairs 26-28, 33). The majority of these were undecorated, but one sherd had a herringbone motif, and another hatched triangles.

Sherds recovered "...from primary positions, i.e. pressed into the bottoms or sides of stone holes..." [Smith, 1965: 232], include "plain bowl" Neolithic ware from stone 25a, Peterborough Ware from stone 30a, and Grooved Ware from stone 15a.

The "occupation site" consisted of a series of pits, holes, and scatter of artefacts on the old land surface, c. 1' below the present turf, between stone pairs 27-32. Two pits and ten smaller holes were all filled with a dark soil containing charcoal, topped by a layer of 'natural silt'. The pits were bowl-shaped, 4-5' in diameter, and 1-2' deep. A sherd of "Bell Beaker" was recovered from the layer of 'natural silt' in pit 1 [P363, fig. 79]. Smith likened this sherd to the beaker from the grave at the foot of stone 25b (P351). Three Grooved Ware and a Peterborough Ware sherd were recovered from the lower silt of this pit.

There is no indication that the holes held either posts or stones, nor do they appear to form a pattern which might indicate a structure of any sort. The fillings are dark soil and charcoal, with the occasional sherd of Peterborough or Grooved Ware. Holes 1 and 10 also produced fragments of Group VII stone axes. Smith concluded that

...whatever the significance of the general scatter of material, the holes...cannot be interpreted as adjuncts of normal habitation. It is difficult to evade the conclusion that this site has a direct connection with the Avenue... [Smith, op. cit., 212].

The only remains of the Beckhampton avenue, which Stukeley recorded as beginning at the western entrance to Avebury, and extending south-westward towards Beckhampton (equalling the West Kennet Avenue in length) are the two Longstones of the "Longstone cove" [see Smith, 1965, fig. 2]. A burial with a "Bell Beaker" was discovered on the re-erection of the "Adam" stone of this cove, in 1913, an account of which was published by M.E. Cunnington. The beaker is an "early"

type [see illustration in Clarke, 1970, vol. 2, fig. 233].

The paucity of datable finds, and the generally poor condition of the site records makes interpretation of events difficult, however, a number of comments may be made concerning Smith's sequence of activities at the Avebury henge.

First, there is Smith's interpretation of the earliest "occupation" of the site; i.e. the artefact scatter along the West Kennet Avenue. This scatter includes a large number of flint artefacts and debris, and pottery of the "Windmill Hill," Peterborough and Grooved Ware traditions. This assemblage of material is not readily distinguishable from that recovered by Gray from the old land surface under the bank of the Avebury henge, nor is it distinguishable, by Smith's own admission [see Smith, 1965: 228-9] from material recovered from the primary "chalk rubble" of the ditch. This evidence might be taken to suggest that the West Kennet Avenue "occupation site," the old land surface under the bank, and the primary ditch fill (and thus the date for construction of the ditch and bank) were of a roughly similar date.

If, as Smith has postulated, the construction of the West Kennet Avenue is contemporary with the construction of the henge ditch and bank, then the bank, ditch, "occupation site," and Avenue form one phase of activity. This would suggest that the burials beneath stones 22b, 25b, and 29a of the Avenue were concurrent with the deposition of Peterborough/Grooved Ware at the "occupation site", bank and ditch. In the case of vessels P352 (Grooved Ware bowl) and P350 (maritime "early" beaker), this would not be out of

line with the current radiocarbon chronology, and this interpretation would fit nicely with Smith's identification of "middle-late" beaker in the mixed silting of the ditch, above the primary chalk rubble.

Beaker P351 (step 4) from beneath stone 25b would be very early in this context, however, although not impossibly so. The grave pit and the stone hole for stone 25b have the same packing material; therefore beaker P351 should be contemporary with the construction of the Avenue. An alternative explanation would be that the construction of the Avenue post-dates that of the bank and ditch, and the activity of the "occupation site". This again would not be out of line with the radiocarbon evidence, which indicates that beaker of "early-middle" type should post-date the Peterborough Ware making up the bulk of the finds from the chalk rubble of the ditch, the deposit on the old land surface under the bank, and the "occupation site" scatter.

If the construction of the West Kennet Avenue can be taken to post-date the construction of the bank and ditch, what then is the relationship between the avenue and the secondary "mixed silting" of the ditch? Smith has interpreted the beaker deposit (Gray, no. 279) as a "Long-Necked beaker", therefore of "middle-late" type, and has equated it with the re-identified "Bronze Age" material from the mixed silts [see Smith, 1965: 228-9], including Gray no. 167, a ?Primary Collared Urn. If this interpretation is correct, then the secondary mixed silts should post-date the Avenue construction.

However, it is clear that the beaker sherds and the "Bronze Age" material do not belong to the same level within the ditch. The beaker sherds are derived from a

seam of dark soil and charcoal, lying between the chalk rubble and the mixed silt, while the Bronze Age sherds, with the exception of no. 167, come from higher up in the mixed silting. No. 167 presents a problem; in Gray's report it is identified as Peterborough Ware, and located in the chalk rubble, although in a position above the level of the beaker deposit. In Smith's reinterpretation, it is identified as Collared Urn, and is grouped with the finds from the mixed silting. It seems possible that although this sherd appears to be located in the chalk rubble, it is in a derived position, and was deposited after the beaker sherds. Further, there is nothing in either the fabric or decoration of beaker no. 279 to distinguish it from other beakers of the "early-middle" type. An alternative solution, then, would be to equate the beaker deposit in the bottom of the secondary silts to the beaker deposits associated with the construction of the West Kennet avenue. This would then be followed by the "middle" mixed silting, containing "Bronze Age" material including sherd no. 167, and the "final" mixed silting, with Romano-British finds.

In this context, it is interesting to note that Romano-British sherds were also recovered from the chalk rubble in cutting I, at a depth equivalent to the "final" mixed silting. The occurrence of these sherds high up in what appears to be the chalk rubble may suggest that the stratigraphy of the upper ditch silts is not as straight-forward as Gray's section plans would indicate.

Very little can be said concerning the beaker deposits in stone holes 41, 45 and 46 of the Outer circle. The context for these sherds is clearly stated to be above the packing stones, which would suggest

that the beaker deposits should post-date construction of the circle. It would seem likely that the Outer circle, and the Southern Inner circle, with "plain bowl" Neolithic, Peterborough and Grooved Wares from primary positions within the stone holes, were constructed contemporaneously with the bank and ditch. If the deposit of bones and beaker sherds in stone hole 41 can be interpreted as a grave, then this deposit may be contemporary with the other graves, in stone holes 22b, 25b and 29a, of the Avenue. The beaker burial in the "Adam" stone hole of the Beckhampton avenue, with a beaker of "early" type, should probably be included within this stage of activity.

An alternative interpretation of the events at the Avebury henge would suggest the following sequence:

1. ?possible pre-henge activity at the "occupation site", West Kennet Avenue and the old land surface under the bank.
2. construction of the bank, ditch, Outer circle, and Southern (and Northern) Inner circle(s). Contemporary with the use of Peterborough/Grooved Ware. Possible activity at the West Kennet "occupation site."
3. construction of the West Kennet and Beckhampton avenues, contemporary with "early-middle" beaker and Grooved Ware. Possibly contemporary with beaker deposits at the top of the chalk rubble of the ditch, and with burial in stone hole 41, Outer Circle.
4. secondary "mixed silting" of henge ditch, contemporary with "Bronze Age" sherds, and probably including the burial in the south-eastern ditch terminal, of a female with "bronze-age" type pottery.
5. "final" mixed silting, with Romano-British material, in henge ditch.

One final point of interest is the concentration of antler picks on the floor and in the lower chalk

rubble, of the henge ditch, particularly in the south-eastern ditch terminal [see Gray, plate XLIII, fig. 3]. This is matched by a similar deposit at Durrington walls.

The Sanctuary, Overton Hill, Wilts.

The Sanctuary was made up of, at various periods, stone or timber circles; eight concentric rings--two of stone uprights (A and C) and six (or seven) of timber posts (B-G, and the partial ring H). The site is connected to the class II henge at Avebury by the West Kennet Avenue, which joins the Outer Stone ring (A) between stones 1 and 41 [Cunnington, 1931, plate I]. This axis with the avenue indicates the probable "entrance" to the site, in the north-west.

The site was excavated by the Col. and Mrs. Cunnington in 1930, at which time it was under cultivation. Beaker pottery was recovered from the stone and postholes of rings C, D, E and G, and from the burial at the base of stone hole C12.

The two stone circles were still standing when the monument was visited by Aubrey about 1648, "...on the brow of the hill is another monument, encompassed with a circular trench, and a double circle of stones, four of five foot high..." [op. cit., pp. 300]. No indication of the "circular trench" was discovered in the course of the excavations. In the Outer Stone circle, A, the long axis of the stones lies along the circumference of the circle, with the exception of stones A1 and A41, whose axes lie along the West Kennet avenue, "...and may be regarded as having formed the entrance to it..." [op. cit., pp. 305]. To the north two stones, N1 and N2, lie parallel to the Avenue, and

Aubrey recorded a third beyond and in line with these, although the stone hole for this stone could not be located. Cunington concluded that the Avenue originally consisted of a triple row of stones, for at least part of its length [op. cit., 306], however it is possible that these stone holes represent the remains of a different, and probably earlier arrangement. Stones N1-N2 are in line with posthole B34 of the Fence ring, which, with posthole B33, are considerably larger than the other postholes in that ring, and may represent an "entrance" structure. The alignment between N1-N2 and B33-34 might suggest an axis for the possible earlier "avenue."

At the base of the A7-9 stone holes, postholes were discovered, extending below the level of the stone holes. An additional hole, A7a, was also recovered, which "...is of the same character as the post holes..." [op. cit., pp. 305]. This would seem to indicate that the stone circle A replaced a previous post circle, possibly when the present avenue was completed.

The inner stone circle, C, is part of an alternating ring of postholes and stone holes. The postholes C1 and C31 are in alignment with B33-34, as are D1 and D12, E1 and E8 and F1 and F8 (see plate II), which would suggest a consistent axis for the postholes, not matched by the stone holes. At the base of stone hole C12 a crouched inhumation of a youth was discovered, in a shallow pit. The burial was accompanied by a beaker with barbed wire decoration (Clarke BW 1063), of step 3/"early" type [see plate IX]. This is paralleled by the burials at the base of stones 18 and 25b of the West Kennet Avenue.

The postholes fall into two groups; rings B, F, and the partial ring, H, and rings C, D, E, and G. The first group are shallow (under 3' deep) and small, with no visible cores and apparently no finds recovered. The second group are much deeper (over 4' deep) and of greater diameter, with visible cores in more than half the holes, and contain all the recovered artefacts. The postholes of rings D and E were "...stepped, i.e. the outer half was deeper than the inner..." [op. cit., pp. 307], and double cores could be seen in ten of the eleven postholes of ring D [see plate III.2-4]. It is possible that this may be the result of recutting the postholes for the replacement of posts; Cunnington noted that the cores in the outer half of the postholes were better defined. It would be possible to suggest that the differences in these two groups indicate that they were constructed at different times, however the circles of both groups would appear to share a common axis, and it seems equally likely that the size of the postholes in the first group was a mitigating factor in the deposition of artefacts.

The pottery recovered from the postholes is divided between "plain bowl" Neolithic wares and beaker, with a component of Peterborough Ware [see plate VII.3-10]. As the sherds are recorded by depth and not by layer, it is impossible to know whether a sherd was recovered from the packing or the filling of a posthole. However, in general it can be said that the "West Kennet" wares (W.K. in the report, "plain bowl" Neolithic wares primarily of the Windmill Hill type) are recovered from the lower portion of the postholes, and in several instances are recorded as "...found in packing at bottom of hole..." [op. cit., 325], as in holes C19, D7, D10, G3 and D3, where they were found

with Peterborough Ware. Peterborough Ware was also recovered from the bottom of hole C23.

The beaker sherds, in general, are recovered from the upper levels of the postholes, and the sherds of one vessel may be scattered through several postholes, as for instance sherds 14, 15, 17 and 18 (plate VIII), from holes C13, C15, D15 and E4. The sherds are mainly small and worn, and decoration consists almost wholly of horizontal rows of comb, with a few fingernail decorated sherds. This type of decoration is not indicative of either "early" or "late" beaker types, although in the absence of any other decorative techniques it may be taken to indicate an "early" assemblage.

There is one very unusual sherd, plate VII.1, with groove decoration in a chevron motif, on the inner surface below the rim. The shape of the rim would indicate a "middle" type beaker, but the placement of decoration of this type, on the interior is otherwise unknown in a beaker context. It seems likely that this sherd is Grooved Ware.

The majority of pottery sherds recovered come from rings C and D, the largest posthole rings. There are concentrations of sherds, particularly in hole C13, but also in D8 and G3 (there is some confusion as to whether the sherds were derived from F3 or G3; the sherds themselves are labeled F3, however Cunnington states that "...holes in this ring...were...without relics of any kind..." [op. cit., pp. 308]). There is no obvious significance to the location of these concentrations.

Cunnington felt that it was most likely that the stone circles A and C had replaced the timber circles, and this would seem reasonable, in the light of sequences at other sites (for instance Durrington Walls). The stones were known to be standing after the timber posts, so that they must at least be contemporary, however "...it will be seen that if stones and posts were standing at the same time there would be no way through the Stone-and-post ring..." [op. cit., pp. 309]. Some of the stone and postholes overlapped, however the sequence could not be reliably ascertained [ibid.].

It would appear that the activities at the Sanctuary can be divided into two main phases, the first encompassing the erection of the timber circles, and the second the re-building of the circles in stone. The first phase may possibly be divided into two, with circles B, F and the postholes at H followed by circles C, D, E and G; the only evidence for this, however, might be the fairly awkward spacing of rings E, F and G. Evidence from the base of stone holes A7-9 would suggest that the Outer Stone ring directly replaced an earlier circle of timber posts, which are putatively part of the initial phase. There are distinct "gate post" posts at B33-34, which appear to indicate an entrance, and these are aligned with a possible earlier "avenue" (stones N1-N2). Sherds from the bottom of postholes C19, C23, D3, D7, D10 and G3 would suggest that construction of the timber circles may be associated with "plain bowl" Neolithic and Peterborough Wares. There may have been some rebuilding of the circles, as indicated by the double cores in the postholes of rings D and E.

The "lithicisation" of the circles would appear to be contemporary with the connection of the Sanctuary to the henge at Avebury, through the West Kennet avenue. The stones A1 and A41 of the Outer circle align with the avenue axis, and the beaker burial at the base of stone C12 is parallel to those at the Avenue, stones 18 and 25b. This phase is associated with beaker of "early" type, possibly in the fill of the postholes, and from the stone holes. It is interesting to note that, despite the quantities of Peterborough Ware recovered from the "occupation site" of the avenue, relatively little came from either the postholes at the Sanctuary or the ditches and circles at Avebury. The beaker activity at the Sanctuary in the later phase can be tentatively linked to the beaker in the upper silts at Avebury, and the similarity of finds in the earlier phases at both sites could suggest that both sites were constructed and in use contemporaneously and jointly modified as part of a regional plan.

Arminghall, Norfolk

Discovered by aerial survey in 1929, Arminghall is a class I henge with two ditches and a bank between, with the entrance to the west. Its excavation was undertaken by J.G.D. Clark in the summer of 1935. Trenches were placed across the inner and outer ditches and the bank [sections A-B, C-D, F-G, and H-I, see Clark, 1936, pl. IV], and the central area was stripped down to "...the general level of the gravel..." [Clark, 1936: 6]. Eight large timber postholes, previously identified as dark spots on the aerial photographs, were discovered. Two of these, numbers 3 and 7, were sectioned.

The inner and outer ditches varied considerably in their dimensions and silting pattern, the outer ditch being roughly half the width and two-thirds the depth of the inner. The outer ditch showed two layers of silting, with a "hearth," containing Romano-British sherds, above the secondary silting.

The sequence of layers in the inner ditch was as follows:

1. ploughsoil (c. top 3')
2. secondary silt, layers 3-6; a) fine silt, layer 3, b) darker silt with charcoal, layer 4-5, c) fine silt, layer 6
3. primary silt, layers 7-8; a) coarse gravel rubble, layer 7, b) charcoal seam, layer 8

The secondary silts produced Early Iron Age and Romano-British material. The charcoal seam at the base of the ditch (layer 8) produced sixteen sherds of prehistoric pottery, identified as Peterborough Ware and beaker. These were separated from the upper silts by layer 7, which was sterile.

The central area was stripped to the level of clean sand and gravel, revealing a horse-shoe shaped arrangement of postholes, which faced the entrance causeway. When two of these holes were sectioned, clear post-pipes were discovered, suggesting to Clark that the timber posts had rotted *in situ*. The base and sides of the post-pipes contained deposits of charcoal, and charcoal-stained filling. Clark interpreted this as charring which occurred through the use of fire as an agent in felling the trees [Clark, 1936: 10]. A sample of charcoal taken from the base of posthole 7

was radiocarbon dated to 2490 ± 150 (BM 129)⁶³. No artefacts or other features were recovered in the central area or the filling of the postholes.

The prehistoric pottery recovered from the inner ditch consisted of two sherds of Peterborough Ware (not illustrated), with crescentic maggot impressions, and a number of sherds of rusticated ware, identified as "Arminghall Ware" by Clark, which he paralleled to sherds recovered with beaker "fine ware" from Whitehawk Camp and Gorsey Bigbury. Sherds 1-6 [Clark, fig. 9, pp. 18] probably represent one vessel, perhaps similar to that from Church Hill, Findon, Sussex [see fig. 11, pp. 22]. Sherd 7 is of a different vessel, possibly Clarke's shape III/VIII ("East Anglian" type/step 3). The apparent decoration in the illustration is the result of surface deterioration. Rusticated beaker ware is common to all beaker steps, however, the shape of the vessels represented by sherd 7 would suggest an "early" placing for this group.

Clark felt that the "...unity of the plan suggests that the whole monument was erected at one time..." [op. cit., pp. 14] and thus was able to date the monument on the basis of the pottery recovered from the inner ditch floor. He suggested that the timber horse-shoe would be set in place before the ditches were dug, as it would be difficult to drag the timbers over the ditch and bank. All the posthole ramps face south-east, and presumably timbers were brought from that direction. Using this line of reasoning, posts 1-4 would have been erected before posts 5-8 [see pl. IV]. His sequence of activity was as follows:

⁶³the post was estimated to be c. 120 years old at the time of felling (see *Radiocarbon* 5 (1963): 105).

1. Erection of the timber uprights.
2. Excavation of the two ditches, and construction of the bank from the resulting material.
3. Deposition of Peterborough Ware and beaker ware in the charcoal layer at the base of the inner ditch.

These three activities formed the phase I of use of the monument. This was followed by the deposition of layer 7 in the inner ditch, phase II, during which the monument seems to have been kept unusually free of cultural debris [see Clark, pp. 8]. This was followed by the phase III, represented by the secondary silts in the inner ditch, containing Early Iron Age and Romano-British material.

On the basis of the radiocarbon date from posthole 7, the date for the erection of the timber horse-shoe can be placed c. 2500 b.c. If, as Clark has suggested, the erection of the timber horse-shoe and the deposition of layer 8 in the inner ditch represent one event, then the rusticated beaker is the earliest beaker pottery in the British Isles.

Two comments can be made on Clark's scheme. First, there is marked variation between the inner and outer ditches, as noted above. This is particularly noticeable in the silting patterns, which may suggest that these were produced by different types of activities. Alternatively (and more likely), the ditches may have been constructed at different times⁶⁴. Secondly, examination of the post-pipe sections suggests that the charcoal deposits may be the result of burning of the timbers *in situ*, rather than as an artefact of tree-felling [see Wainwright, Mount Pleasant, 1979, figs. 34-36, for comparison]. If the charcoal seam (layer 8) of the inner ditch is the

⁶⁴Healy has suggested that the inner ditch may be an addition to the monument [Healy, 1984: 102-3].

result of the burning of the timber posts (either through natural processes or by charcoal being deliberately placed in the ditch), then the Peterborough and beaker Wares, which are incorporated in this layer, would coincide with the destruction of the timber horse-shoe, and presumably the end of the "Neolithic" use-phase, sometime (?long) after the radiocarbon date for the horseshoe's construction, c. 2500 b.c.

One further point may be raised. The only prehistoric artefacts recovered, 107 flint flakes, nine cores, 60 burnt flints, and sixteen sherds, came from layer 8 of the inner ditch. Clark noted the unusual "cleanness" of the central area, and of the monument as a whole. It is possible that layer 8 represents the "latest" (destruction) layer in the Neolithic sequence, earlier layers having been removed by periodic cleaning(s), and followed by refilling (layer 7) with coarse gravel.

Ballymeanoch, Argyll

Ballymeanoch is a class II henge, with external bank, and entrances to the NE and SW. The centre of the henge ~~was~~ covered by a cairn, beneath which two cists were discovered. The site was first excavated by Canon Greenwell in October 1865, and was re-examined by I. Malcolm and J.H. Craw in April, 1930. A plan of the site was published by Craw [Craw, 1931, fig. 11, pp. 278], and the most recent account of the site, with illustrations of the finds, is published in Kinnes and Longworth⁶⁵.

⁶⁵Kinnes & Longworth, 1985, The Greenwell Collection; un-numbered entry 134, pp. 151.

No information is given in Greenwell's account concerning the bank, ditch, or cairn, and it seems likely, in his one-day excavation, that he did not examine these features in depth. He concerned himself with the two cists, the larger of which he records as being "near the centre." This is located by Craw as being 8' E of centre. The cist measured 1.8m x 0.8m x 0.7m, oriented NE-SW. There was a paving of pebbles on the floor of the cist, and possible traces of an inhumation, but no other finds.

The smaller cist, located by Craw to 10' NNE of centre, measured 0.9m x 0.4m x 0.6m, and was oriented NE-SW also. This cist contained traces of a possible triple inhumation, and a largely complete Clarke N₃(L)/step 5 beaker. Both cists had been opened prior to Greenwell's excavations, and it is possible that the larger originally contained artefacts. Craw records that

...a number of cists at Poltalloch are said to have been opened many years before...by a factor called Gow. After his death the relics in his possession were removed from the district by his sister. Their subsequent fate is not known.... [Craw, 1931: 279].

The use and or re-use of henge sites for burial deposits, often involving the erection of cist or cairn, is a common feature among Scottish henges and stone circles. These burials usually represent a secondary addition to an existing site, as for instance, the cairn and burials at Cairnpapple. On the basis of the existing evidence, it would seem likely that construction of the henge ditch and bank at Ballymeanoch, at an unknown date, was followed, during the "middle beaker period," by the addition of two cists with inhumation burials, covered by a cairn.

North Mains, Strathallan, Perth

North Mains is a class II henge monument, with external bank and two entrances, to the east and west. The site was excavated by G. Barclay in 1978-9, in advance of destruction. The central area was completely stripped, and trenches were placed at the ditch terminals, and across the ditch and bank [see fig. 3]. Aerial survey had recorded a "...ring of dark circular marks, concentric with the ditch..." [Barclay, 1983: 123], which proved on excavation to be the postholes of a timber circle (circle A).

Up to 35cm of ploughsoil were removed by mechanical excavator, to c. 5-10cm above the identified subsoil; the remainder was removed by hand. Beaker pottery was recovered from the period III features; deposits in the tops of postholes A/7 and A/8, of the timber circle, and burial F.

Barclay distinguished five periods of activity on the site:

1. Period I, "pre-henge" phase; cultivation of old land surface, digging of three pits (F1, 7, 48), deposition of at least one cremation burial (burial A).
2. Period II; erection of timber circle A, followed by digging of ditch and erection of bank, c. 2100-2000 b.c. An episode of burning occurred near the end of this period. (?) Timber circle B probably erected after this, and before burials, period III.
3. Period III; burial and ritual/domestic activity, deliberate deposits of burnt material in tops of circle A postholes, and in pit (F33). Burials B-K in and around henge, c. 1550-1450 b.c.

4. Period IV; cremation and interment on pyre sites to north of enclosure (F3-6). Final fill of pits dated to c. 1000-900 b.c.
5. Period V; digging of long graves within henge, dated to c. 750 a.d..

Period II was marked by the construction of timber circle A, a ring of 24 posts with ramps, which Barclay felt preceded the construction of the ditch and bank. The positioning of the ramps suggested to Barclay that the posts had been erected in small groups, of 3-4 posts at a time.

Most of the primary fill of the post-pits seemed to have been the result of erosion of the sides of the pits, prior to the insertion of the posts [Barclay, 1983: 133]. The posts were packed with redeposited gravel. Charcoal from this layer was radiocarbon dated to 2090 ± 70 b.c. (GU 1354) and 2155 ± 60 b.c. (GU 1353).

The post-pipes (marked "A" on the section drawings) are fairly distorted; Barclay interpreted this as the result of shifting and settling during rotting of the posts *in situ*, rather than to "deliberate disturbance." In twenty of the post-pits the central fill contained charcoal and charcoal-stained soil, and in pit A/7 a burnt oak plank was found.

...these deposits suggested that charcoal had found its way from the surface into the post-centres during the rotting of the heartwood of the timbers and that a substantial area of the henge surface may have been contaminated with charcoal at that time....[ibid.].

Charcoal samples from this level [marked "B" on the section drawings, figs. 6-9) were radiocarbon dated to 2065 ± 65 b.c. (GU 1435), 2180 ± 60 b.c. (GU 1436) and 2330 ± 60 b.c. (GU 1352, oak plank).

During the period III activity, deliberate deposits were made in the tops of thirteen of the postholes (marked "C" on the section drawings), where hollows had formed due to compaction and subsidence [fig. 48, pp. 562]. These deposits included charcoal, burnt bone, and pottery fragments. Sherds of several vessels of "late" beaker, S₄/step 7 type, were recovered from post-pits A/7 and A/8 [see fig. 28, SF6, 9-10]. Insufficient charcoal for dating was recovered from the post-pits, but charcoal from the fill of pit F33, of similar composition, was dated to 1450 ± 60 b.c. (GU 1438). F33 also produced two barbed-and-tanged arrowheads (SF39 and SF40).

The postholes of a second possible circle, circle B, were also recovered, located within circle A and on a slightly different axis. Only a very small proportion of the post-pits remained, and they cannot be related stratigraphically to any other features on the site. No artefacts or charcoal were recovered from their fill, therefore this circle "...was probably constructed at a time when little charcoal lay on the ground..." [Barclay, 1983: 189]. Barclay thought it was most likely that this had occurred between the burning phase at the end of period II (marked by the "B" deposit in the postholes) and period III.

The ditch and bank were investigated in sections A-B to G-H [fig. 3, and fig. 10, facing pp. 134]. Barclay has very little to say concerning the ditch and bank; the bank was largely denuded by ploughing and erosion, with most surviving fragments less than 0.1m high. The excavated parts of the ditch "...were smooth bottomed and showed no evidence of segmentation..." [Barclay,

1983: 133], in contrast to the timber circle A, which appears to have been constructed in segments.

Although section plans of the ditch are provided, the stratigraphy of their fills, and relationships to other features on the site are not discussed. Any comments are, therefore, speculative, however it is interesting to note certain apparent similarities between the ditch sections, and those of the postholes of circle A. Sand, gravel or sandy gravel [see soil key, fig. 2, pp. 125] seems to form the lowermost portion of both the ditch fill and the fill of the postholes, with the post-pipes (layer "A") being marked out in sandy gravel. The middle constituent seems to be silt, loam or a mixture of the two, with the "B" deposit being either silt/loam, or charcoal staining. A layer of charcoal staining occurs in ditch sections C-D and G-H, which might be related to this "B" deposit, or to the later "C" deposit, which also shows a silt/loam composition, and charcoal staining. In ditch section A-B, a particularly stony deposit at this level may suggest recutting of this ditch at this time (period III), which would be in line with deposits in the tops of the postholes, and the numerous burials, one of which, burial E, is cut into the bank. A "beaker" recut is a consistent feature of henge sites so far discussed. Above this is an accumulation of loam "ploughsoil."

Burials B-K [see fig. 4] were assigned to period III by Barclay, on the basis of their form, associations or radiocarbon dates. Burials B-E were inhumations or possible inhumations; B, D and E were associated with Food Vessels [see fig. 29]. The central burial, B, produced a radiocarbon date of 1540 ± 65 b.c. (GU 1381), on bone from the skeleton. Burials F-K were

cremations; F with a "late" beaker [fig. 30b], H with a Collared Urn, J with a bipartite urn, and K with an enlarged Food Vessel [figs. 30-32]. The latter three were "urned" cremations, with the vessel inverted over the cremated bone.

It is of interest to note the relative locations of this group of burials; B, C and D, including two of the three Food Vessel burials, are close to the central point of the henge, while E, F, G and K are peripheral. H and J, although central, are secondary in nature, cut into the top of F51, which may have been a grave pit [see pp. 154, feature description]. Chronologically, the "late" beaker and urned cremation burials would follow the Food Vessel inhumations, and this division appears to be mirrored in the location of the graves⁶⁶. The beaker from burial F is an S₄/step 7 type [see fig. 30.b], which would fit nicely into the period defined by GU 1381 and GU 1438 (1540 ± 65 b.c., 1450 ± 60 b.c.).

While Barclay's five period scheme of activity would seem to be essentially accurate, several comments can be made. It is unfortunate that so little information is offered concerning the ditch stratigraphy; it would be elegant to be able tie together the charcoal layer and possible recutting of the ditch with the "C" period deposits in the postholes of circle A, and the burials B-K, including burial E, cut into the henge bank. The charcoal seam in the ditch is at a level where the ditch was almost completely silted, which would seem to

⁶⁶there are two possible interpretations; either the beaker burial forms a satellite to the Food Vessel graves, or is a secondary (e.g. later) burial. In either case the "primacy" of the Food Vessels is worth note, as it is a consistent feature of northern henges.

fit nicely into a period when the henge structure was being modified into a cemetery site.

The relationship between circle A and circle B is an intriguing one, and again, it is unfortunate that no dating evidence was uncovered. In comparison with the posthole sections from Durrington Walls, Southern Circle, it might be possible to speculate that the upper portion of the postholes had not been recovered. Circle B is set inside circle A, and on a slightly different axis. Neither circle respects the henge causeways in the matter of spacing of posts, which might suggest that both circles were constructed prior to the ditch and bank. On the basis of Barclay's arguments for the construction of circle A before the bank and ditch, and the lack of charcoal deposits from within the postholes of circle B, it would be possible to speculate that circle B was constructed prior to A. This sequence of events would be in line with that known at the Southern Circle, Durrington Walls. Features such as F35, 37, 38, 42 and 57 could represent replacement posts for circle B.

A further point concerning circle A is Barclay's interpretation of layer "B"; the result of contamination of the rotting timber posts with charcoal from the surface. Comparison of these sections with those for the timber palisade at Mount Pleasant [see figs. 34-36], might suggest that a simpler interpretation would be the burning of the timber posts at North Mains, either partially or completely.

Balfarg and Balbirnie, Fife

Recent re-assessment [Mercer, 1988] has concluded that despite its present penannular appearance, the Balfarg henge was originally circular, with an external bank, and two entrances, to the west and south west [see op. cit., illus. 3, pp. 66] Two standing stones are extant. The henge ditch and bank, which were largely obliterated by ploughing and erosion, were identified by aerial photography and phosphate survey. The site was excavated in 1977-78 by R.J. Mercer, in advance of building works. The whole of the henge interior and seven sections across the ditch were examined [see Mercer, 1981, fig. 40, pp. 112].

Mercer recognized four phases of activity on the site:

1. Event 0. use of the western portion of the enclosure (feature U2); activities included breaking of pottery and burning wood and bone. this phase occurred shortly before event 1a.
2. Event 1.
 - 1a. erection of timber circle A, with "porch" (postholes A10 and A11). digging and filling of pit X2.
 - 1b. erection of series of possible timber circles (circles B-F). which may be associated with circle A.
 - 1c. erection of possible ?rectangular structure (Z9-Z15) near the centre of the monument, subsequently burnt.
 - 1d. digging of henge ditch and building of bank external to ditch, separated by c. 2m berm.
3. Event 2. erection of stone uprights (?in replacement of timber circles), subsequent to events 1a and 1b. Two circles; inner (S1-S5) and portal stone, and outer (S'1-S'6).

4. Event 3. erection of cist near centre of monument, placement of inhumation burial with "late" beaker.

The bank structure was obliterated by surface erosion, which Mercer calculated may have removed up to 0.5m of the prehistoric land surface. The ditch appeared to Mercer to "...be dug as one exercise..." [op. cit., pp. 66], with no evidence of recutting or reshaping. The primary and secondary silts (layers 6-5) are followed by a turf-line (layer 4), overlain by eroded material (layers 1-2). The ditch material would appear to have been archaeologically sterile.

Timber circle A was set concentrically to the ditch, comprising a ring of fifteen posts, with two "portal" or "porch" posts on the west side (A10 & A11). Mercer noted that the deepest post-sockets and the largest diameter of posts appeared to occur on the west side of the enclosure. The packing of the postholes of circle A produced quantities of Grooved Ware pottery, bone, flint and charcoal. Charcoal samples from A13 and A11 produced radiocarbon dates of 2230 ± 50 b.c. (GU 1160), 2085 ± 50 b.c. (GU 1161), 2320 ± 60 b.c. (GU 1162), and 2365 ± 60 b.c. (GU 1163). There is some evidence for the removal of the posts in antiquity [see especially sections of A3, fig. 16 and A5, fig. 17), and only one posthole has a section with a clear post-pipe [A12, fig. 22]. Posthole A11, which is unique in several respects, produced the only deposit which might be connected with burning of timbers *in situ* [see fig. 21, pp. 91]. At Mount Pleasant, Wainwright was able to uncover evidence for differential treatment of posts; this may be the case at Balfarg.

To the west-north-west of circle A, a layer of rotted material (layer U2), with the remains of a

palisade trench⁶⁷, along the lines of circles E and F, was recovered [fig. 25, pp. 95]. This layer sealed a substantial deposit of pottery, concentrated over pit B37, and containing 16 of 49 Grooved Ware sherds from the site. Mercer calculated that 82% of sherds from layer U2 could be matched by sherds from the postholes, leading him to suggest that

...breakage having taken place in the restricted area to the west of the timber circle indicated by the occurrence of material in layer U2, debris was deliberately taken from this location and placed within the sockets as part of the backfilling activity... [Mercer, 1981: 96].

Statistical analysis of all recovered sub-surface features led to the postulation of five further timber circles (B-F) concentric to circle A. Of these, circles B, E and F coincide with observable concentricities in stone distribution and soil features.

Another feature, X2, set just inside circle A (near A7), contained a considerable quantity of burnt bone, together with a largely complete Grooved Ware vessel (P7). This may possibly represent a cremation burial. Together, pit X2, layer U2, and postholes A11 and A7 contained the bulk of pottery recovered from the site [fig. 29, pp. 101]. Of these, the largest single deposit was recovered from A11. The bulk of the pottery from this posthole was derived from the upper layers [1, 2, and 4, see pp. 83], and analysis of the distribution would suggest that the sherds were incorporated into the fill while the post was still in place.

⁶⁷of particular interest, considering the re-interpretation of the palisade enclosure at Mount Pleasant to an early phase of the site [see above, pp. 222]. The U2 area may have parallels in the "midden" at Durrington Walls and the "occupation area" at West Kennet Avenue.

The stone hole S'3 cut the arc of timber uprights, circle F [F1-F9, fig. 34], thus providing the stratigraphic sequence of timber circles followed by stone circles. Stone holes S'1-S'6 mark the outer circle of possibly 24 stones, S1-S5 the inner circle of possibly 12 stones. The portal stone, on the south side of the entrance, appears to have been singular. An area of burning was uncovered in the base of stone hole S1. Possibly contemporary with, or subsequent to the stone circles is a beaker burial; an inhumation of a young adult in a sub-oval pit, covered with a single large stone. The beaker is handled, of S₄/step 7 type [fig. 45, pp. 135], and is accompanied by a flaked flint knife.

Balfarg has a number of parallels with other sites, particularly between timber circles A-F and the Southern Circle at Durrington Walls. In addition to similarities of structure, there is the marked concentration of vessels in a few postholes, centering on those postholes nearest the entrance. The relationship between layer U2, the palisade slot, possibly part of circle E or F, and circle A is an interesting one--it is unfortunate that the stratigraphic relationships within layer U2 are not clearer.

The stratigraphic relationship between S'3 and F1-9 is used by Mercer to suggest that the timber circles may have been "replaced" with the stone settings. It is interesting to note, parallel to the timber circles, the deepest stone holes appear to be those on the west side. The "late" beaker burial may be associated with this phase; "...such an association between beaker elements and the lithic phases of construction on henge

sites would be quite in keeping..." [Mercer, 1981: 76] with evidence from other sites, for instance, Avebury [Smith, 1965; although here the beaker is "early" type]. There is, however, no evidence to support this association, and parallels with Cairnpapple, which also produced "late" beaker, would suggest that the beaker burial should post-date the stone settings.

Adjacent to Balfarg, and almost certainly part of the same "ceremonial complex" is the stone circle at Balbirnie. This site was excavated in 1970-71 by J.N.G. Ritchie, in advance of roadworks, and was subsequently moved and reconstructed, approximately 125m south-east of its original position.

Ritchie recognized three phases of activity on the site:

1. Phase I. A circle of standing stones, with a rectangular setting of stones in the centre.
2. Phase II. Construction of a number of cists, covered by a cairn, in the centre of the monument.
3. Phase III. A series of cremation deposits inserted in the cairn.

The stone circle consisted of ten stones, of which five were visible prior to excavation. Two of these, 9 and 10, were recumbent [see Ritchie, 1974, fig. 1b]. Deposits of cremated bone were recovered from stone holes 1, 2, 7, 9 and 10, and two sherds of Grooved Ware (SF 29) came from the packing around stone 10. A number of other Grooved Ware sherds [fig. 4, SF 8, 9, 12, 14, 22, 27, and 28] were recovered from the body of the phase III cairn.

Set into the old land surface, in the centre of the monument, was a rectangular stone structure, of unknown function. This structure clearly pre-dated two of the cists (3 and 4) which cut into the south-east and north-west corners. There was no evidence, however, to clarify the relationship between this structure and the stone circle.

Four cists dug into the natural gravel, and a (?coffin) burial on the old land surface were discovered in the centre of the circle [fig. 1b]. Two of the cists included cup- and cup-and-ring marked stones, which Ritchie postulated "...were originally part of the central rectangular structure and were re-used after this had been abandoned..." [Ritchie, 1974: 11]. Cists 1-3 contained cremations; identified as a female and child in the case of cists 2 and 3. It is interesting to note that the cremations identified from the stone holes also appear to be females, or children. Cist 3 produced a Food Vessel (SF 2) and a flint knife (SF33), cist 2 a bone bead (SF37), cist 4 a v-perforated jet button.

The burial, located 2m from the south-west corner of the rectangular structure, produced a beaker of S₄/step 7 type [fig. 3, SF1], with a jet disc bead [fig. 5, SF 36]. Twenty-five jet disc beads were recovered, from the cairn, cist 1 and the beaker burial, probably all part of one necklace. The beaker was associated with charred wooden planks of a possible ?coffin structure, which were radiocarbon dated to 1330 ± 90 b.c. (GaK 3425). A further beaker sherd (SF3) was recovered from the old land surface; it does not belong to the beaker burial, and is too small to be clearly identified (it may, in fact, be Grooved Ware).

The cists and rectangular structure were subsequently covered by a cairn, into which the cremated remains of at least sixteen individuals were inserted or scattered, with a large number of "cinerary urns," which appeared to Ritchie to have been broken up before deposition [op. cit., pp. 15].

To return to the "Balfarg-Balbirnie ceremonial complex", Mercer [above, 1981] has postulated a series of concurrent and parallel developments;

Table 12: Correlation of Ritual Activity at Balfarg and Balbirnie

<u>Balfarg</u> Event:	<u>Balbirnie</u> Phase:
1a. timber circle A, ?cremation pit X2————— Grooved Ware	I. stone circle with rectangular setting, Grooved Ware
2. inner and outer stone circles	
3. cist and Late Beaker—————	II. cists and burial, cairn, Food Vessel and Late Beaker

He links phase I of Balbirnie to event 1 of Balfarg by the occurrence of Grooved Ware in primary packing of both the postholes and stone holes. Phase II (Balbirnie) would then correlate with event 3 (Balfarg), the beaker-cist burial. This parallelism of events is not exact, however. There is no evidence for a cairn structure at Balfarg to correlate with that at Balbirnie, phase III [Mercer, 1981: 165]. On purely structural grounds, phase I should correlate with event 2, the "replacement" of the timber circles by the inner and outer stone circles. Another interpretation might be an "alternating" sequence of events, which sees

focus shifting from one site to the other. The sequence would begin with the construction of the timber circles at Balfarg, and end with the insertion of cremations into the cairn at Balbirnie, after the Balfarg henge had fallen into disuse.

Cairnpapple, West Lothian

Cairnpapple is a class II henge with an external bank and entrances to the north and south. In the henge phase (II), there was an oval of standing stones, concentric to the ditch, which appears to have been later dismantled, and reused to form the kerb for the phase III cairn.

The site was excavated by Prof. Stuart Piggott in 1947-48. Prior to that time the cairn (phases III-IV) had been extensively robbed, and the site was covered by a plantation until c. 1920. During the excavation, the area within the henge was stripped to solid rock in a series of rectangular cuttings laid out on a grid system. The ditch terminals were cleared, and sections were cut through the bank (two) and ditch (four), down to the surface of the rock subsoil. Beaker pottery was recovered from the top of the lower ditch silt, the filling of one of the period II pits, the North Grave, and the grave near stone hole 8.

Piggott interpreted the activity on the site as consisting of five periods [see Piggott, 1947-48: 76, fig. 3]:

1. Period I. a stone setting (holes a-g) and cremation cemetery of Late Neolithic date.

2. Period II. the henge monument, consisting of a "circle" of standing stones with cremation burials in association, and an encircling ditch with external bank, and two opposed entrances, of Beaker date.
3. Period III. the primary cairn, containing two cist-burials, one an inhumation with a Food-vessel and the other a cremation, of Middle Bronze Age date.
4. Period IV. the secondary cairn enlargement, with two cremated burials in inverted cinerary urns, of native Late Bronze Age date.
5. Period V. four graves for extended inhumations, grouped together within the henge area to the east (area B), probably Early Iron Age.

Piggott considered the structures by period, beginning with seven holes [a-g, see fig. 5, op. cit., pp. 82] of period I, "...similar in appearance to sockets for standing stones..." [op. cit., pp. 76]. In or beside holes b-g were cremation deposits, and a further five cremations were recovered from area A (C.1-C.5), one with a bone pin of "Late Neolithic, pre-Beaker date..." [op. cit., pp. 78, see also fig. 14, pp. 101]. The stone holes were overlain by the period IV cairn, and cremations C.1 and C.2 by the period III cairn, which would indicate that these features must pre-date period III; Piggott further separated them on the basis of the pins mentioned above, and on the relationship between the North Grave (period II), the "cove" structure. This "cove" consisted of three large and relatively shallow holes [fig. 5, where they appear as four, possibly five holes), which Piggott suggested were stone holes for a structure similar to that found on southern henges such as Avebury. One of these holes had the standing stone from the North Grave (period II) set into it [op. cit., fig. 10, pp. 91].

Also belonging to period I were two sherds of "Western Neolithic" ("plain bowl" Neolithic type) ware,

one from the filling of the North Grave, and two polished stone axe fragments [see figs. 15.1-2, 16.1-2; positions of these objects marked on fig. 5].

Period II was the main henge phase, consisting of the construction of the ditch and bank, and the erection of the stone circle. The ditch was flat bottomed, causewayed [see fig. 6, facing pp. 82], and was filled with a fine silt ("primary") which graded into a coarser stony/loamy silt (secondary), covered by the cairn material of period IV in the west, humus and topsoil. In some sections deposits of charcoal occurred between the fine and stony silts. A single, undecorated sherd of beaker was recovered from the top of the fine silt, in section 'X'.

The stone circle was an oval setting of 24 stones and two "inliers," 1a and 13a, which occurred opposite the entrances. There was a gap between stones 1 and 2, corresponding to the south entrance, but no similar gap in the north [see fig. 3]. "...the general character of the stone holes was not dissimilar from that of the period I holes A-G..." [op. cit., pp. 83], which they resembled in size and section. No artefacts were recovered, but holes 20 and 21 were overlain by the period III cairn. Piggott further dated the circle by the occurrence of a sub-rectangular grave pit, near stone hole 8 [area B, fig. 8, pp. 87]. The pit contained a beaker of step 4/"middle" type [Clarke N/NR 1790, see fig. 17.3, pp. 105]. No trace of an interment remained.

Other structures assigned to period II were a group of pits, and the North Grave. The pits, which were overlain by the period III cairn, occupied an area c. 34' x 22', roughly central to the stone circle. The

north west pit included two sherds of undecorated beaker in its filling, which Piggott interpreted as an artificial re-filling, prior to the erection of the cairn [op. cit., pp. 86, 94-5]. There were no other artefacts recovered.

The North Grave [op. cit., figs. 5 and 9-10, pp. 91] consisted of a grave pit with a standing stone at one end, surrounded by an oval "kerb." The stone robbing was particularly severe at this point, and no trace of a cairn, unique to this grave, could be detected. Stains on the floor of the grave suggested an inhumation, and three beakers were recovered, one an undecorated base sherd, the others of step 5-6/"middle" type [Clarke N₂(L) 1791-92, see fig. 17.1-2]. A layer of carbonized wood above the beakers indicated the remains of a possible "coffin" structure.

The North Grave poses an interesting problem. The inclusion of a standing stone within the grave would appear to connect the structure to period II, however "...the stone holes of the Cove and Henge Monument imply stones of precisely the proportions of those that make up the kerb..." [op. cit., pp. 95] of the period III cairn, and it would appear that the "cove" and circle were robbed for that purpose. The stone of the North Grave is of similar proportions. Further, while the stone circle was demolished in period III, the North Grave appears to have been preserved; "...the inclusion of the North Grave seems so deliberate...curiously at variance with the spirit that permitted the demolition of the most prominent feature of the Henge monument..." [ibid.].

The erection of the kerb and cairn of period III has already been mentioned [see figs. 5 and 11]. With this

period, Piggott notes, "...there is a change in the primary intention (ceremonial), and the provision of an imposing burial place for an individual is the express object..." [op. cit., pp. 92]. Under the cairn are two cist burials, cist B with a cremation, and cist A, with an inhumation, accompanied by a Food Vessel of Burgess "globular bowl" (type 3) type [fig. 17.4, pp. 107]. Cist A was elaborately constructed, with dry-stone walling supporting a massive capstone. One of the stones was cup-marked [fig. 23.2], and other cup-marked stones were recovered from the cairn fill.

This cairn was enlarged in period IV, and a new kerb erected, which extended over the silted-up ditch [see figs. 5 and 6]. The structure and fill of the period IV cairn differed markedly from that of period III, being of stone and earth, and Piggott suggested that the henge bank was robbed to provide the necessary material [op. cit., pp. 98]. Two cremations under inverted Collared Urns were recovered from this period, both of Longworth's Secondary Series type [figs. 20-21, pp. 108-9]. They were accompanied by bone pins of "Wessex" type [fig. 22, pp. 110].

Reconsideration of the evidence, might suggest alternative explanations. The pit "complex" of period II does not have connection with the other structures of that phase, other than the tenuous one of alignment, and could represent "pre-henge" (phase I) activity. In form it bears a certain resemblance to the "mortuary enclosures" already encountered at southern henge sites. The similarity of the holes A-G (period I) with the stone holes of period II might suggest that these should also belong to period I, forming a second stone circle. There is no stratigraphic or artefactual evidence necessitating that the circles be successive.

The strongest alternative suggestion is the placement of the beaker burials in period III, contemporary with the cairn. This would encompass the possible "re-use" of the stone in the North Grave, along with the stones in the kerb, and would create a "burial complex" with a central Food Vessel inhumation, in an elaborate cist, and "satellite" beaker burial, as found at the sites of North Mains and Balbirnie. It seems more likely that the North Grave is a period III feature, successive to the period II stone circles, than that it was preserved while the rest of the period II features were so extensively robbed. The period I "cove" structure can then be moved to period II. Analysis of the available radiocarbon dates has shown beakers of "middle" type to be contemporary with Food Vessels, and followed by "late" beakers and Collared Urns (period IV). The burial near stone 8, in a rectangular rock-cut pit, similar to the North Grave, would fit more comfortably here, than with the cremations of the previous period. Period III would then be associated with the stony (upper/secondary) fill of the ditch, period I and II with the lower/primary, "pre-beaker" silts.

Stonehenge, Wiltshire

...a study carried out recently by the construction firm, Wimpey...calculated that it would cost £332,640 to rebuild the monument, using 30 men...⁶⁸

Stonehenge is a class II henge monument, with exterior ditch, and entrances to the north and south-east. An avenue from the north-east entrance extends

⁶⁸Antiquity 59 (1985): 3

north and east . The interior is marked by a series of stone settings, the most remarkable of which is the horseshoe of sarsen trilithons (the "great trilithons"). There are also several circles of pits (the Aubrey holes, Y and Z holes, Q and R holes), which may or may not have held stones/timber posts.

There have been a number of excavations carried out on the site, most notably those of Lt.-Col. W. Hawley, 1919-26, and Prof. R.J.C. Atkinson, between 1950 and 1964. Hawley's excavations covered slightly more than half the total area within the ditch, and the width of the avenue to the Heel Stone [see plan, Hawley, 1926, facing pp. 1]. His work revealed the existence of the Aubrey Holes, Y and Z holes, Q and R holes (although he did not recognize the latter). Hawley followed on from the work of Flinders Petrie, who "...laid the foundation of all future research at Stonehenge by the publication of his monograph⁶⁹ "...introducing his own system of numbering the stones..." [Atkinson, 1979: 193].

Hawley's work, remarkable both for what it includes and what it ignores, is marred by his unwillingness to analyse and interpret the evidence (for which he was frequently criticised by his colleagues at the time of excavation). He treated individual trenches and sections as discrete entities, and made no attempt to draw together the various seasons' work to create an overall site history.

...he was obsessed with the danger, or at least the undesirability, of forming any kind of working hypothesis, or of framing any specific questions to be answered by excavation... [Atkinson, 1979: 196].

⁶⁹Flinders-Petrie, W.M. Stonehenge: Plans, Descriptions and Theories, 1880.

The resulting reports are disorganized, disjointed and often very confusing.

These faults were amply corrected in Atkinson's book [Atkinson, 1956 & 1979] based on his excavations of 1950-54, which included the Aubrey Holes 31 and 32, sections of the Avenue, holes Y16 and Z16, two sections of the ditch and bank, and a segment of the bluestone circle, between stones 32 and 33. These excavations were followed by additional seasons in 1956, 1958, 1959 and 1964, during which the Heel Stone ditch, and further sections of the bluestone circle were examined. (these additional seasons appear as appendices in the 1979 edition).

Unlike his predecessor, Atkinson's work suffers from rather too much analysis and interpretation. In his preface to the 1956 edition, Atkinson states that "...this is not a book for archaeologists...I have written primarily for the ordinary visitor..." [Atkinson, 1956: 12]. Unfortunately, the report of Atkinson's excavations for the archaeologist has not yet appeared, and one has the impression that "the ordinary visitor" would find the existing volume heavy going, unless well acquainted with basic archaeological principles and terminology. There are a number of criticisms which could be made, apart from the general lack of substantiating evidence inherent in a "popular account," among them the failure to update chapters five and six ("The building of Stonehenge", "The meaning of Stonehenge") which were severely outdated by the time the Pelican edition appeared. The current edition [Pelican 1979] owes more to a re-interpretation of Hawley's work, than to the presentation of new material.

Atkinson's conclusions are concisely summarised in the Royal Commission's report [see Royal Commission, 1979, and fig. 4, a diagram of Atkinson's phases, also §fig. 49, pp. 563].

1. Stonehenge I: construction of the ditch and bank, digging of Aubrey holes, erection of entrance stones (D & E), the Heel Stone, and timber structure A (in Avenue). Inception and use of the cremation cemetery.
2. Stonehenge II: new axis, entrance widened, Avenue added. Four station stones, two with ditches, erected. entrance stones re-set. erection of the double bluestone circle in the Q and R holes, unfinished, stones removed and holes re-filled. possible erection of Altar Stone.
3. Stonehenge IIIa: outer ring or sarsens, and inner horseshoe of sarsen trilithons erected. pair of sarsens mark entrance (Slaughter Stone and partner).
4. Stonehenge IIIb: twenty bluestones erected in oval inside sarsen horseshoe. Y and Z holes dug.
5. Stonehenge IIIc: bluestones re-arranged to form a circle and horseshoe (inside corresponding sarsen arrangement).
6. Stonehenge IV: avenue extended.

Beaker pottery was recovered from: the area of stoneholes of stones 1-2, 6-9, and 30 of the sarsen circle, the "area within the stones," from Hawley's excavations [Hawley, 1928: 158ff], interior to stones 32-46 of the bluestone circle, including the area of the Q & R holes (two sherds from the filling of a Q hole), from the ditch, the interior near Aubrey Holes 20 & 21, Y hole 1, Z hole 10, and the Heel Stone ditch. These are the locations which can be substantiated either from markings on the sherds themselves, or through the published reports, and it seems likely that there was more beaker, now lost.

...Dr. O.G.S. Crawford has recently revealed that Colonel Hawley also had a fixed aversion to pottery. Since in general excavators tend only to find what they are looking for, it is probable that a good deal of evidence of this kind may unwittingly have been overlooked... [Atkinson, 1979: 197, note 1].

The ditch was originally dug as a series of "quarry pits" which were roughly joined, often with causeways left between them. Hawley's "section 2" [1922] revealed the general stratigraphic sequence:

1. top layer, humus (to 14" below ground level).
 2. earthy chalk rubble (14"-20" b.g.l.)
- (these two layers (1. & 2) make up the "Stonehenge layer.")
3. compact bed of yellowish silt (20"-c. 35" b.g.l.)
 4. loose chalky rubble to bottom (c. 35"-54").

The loose chalky rubble (referred to as "the bottom" by Hawley) represents Atkinson's (and later, Evan's) "primary" silt. With the secondary silt above, variously described as silt, earthy chalk, chalk rainwash, compo (referred to as "the silt" by Hawley), it makes up 2/3 of the ditch silts, although the two layers vary enormously in their individual depth. Above this is the tertiary silt/"Stonehenge layer," averaging 20" in depth. This layer contains "...every kind of rubbish, from Neolithic pottery to car headlight bulbs...." [Atkinson, 1979: 24].

Atkinson opened a trench across the ditch, to the west of the entrance, in 1954. His sequence can be correlated with Hawley's:

1. mould and turf (humus).
2. "Stonehenge layer" (c. 18" b.g.l., Hawley's "top layer").

3. chalky silt/rainwash.
4. thin earthy layer (? turfline; these two layers make up Hawley's "silt", the thin earthy layer at the bottom of the silt is mentioned by him in his excavations of the ditch around the entrance.)
5. coarse, loose chalky rubble (Hawley's "bottom").

An antler pick, recovered from the "primary silt" of the ditch, west of the entrance (1950), was radiocarbon dated to 2180 ± 105 b.c. (I 2328). The same ditch section was re-opened in 1978, by Evans *et.al.* [see Evans, 1984: 10-13 and fig. 9]. Evans' layers, although varying somewhat from that of Atkinson, matched the established sequence:

Hawley's	1. modern soil, layers 1-3.
"top"	2. silty loam, layer 4.
"silt"	3. burial pit, layer 5.
	4. secondary fill, layers 6-8.
"bottom"	5. primary fill, layers 9-10.

Two further radiocarbon dates were obtained, on antler from layer 10; 2440 ± 60 b.c. and 2460 ± 60 b.c. (BM 1617, BM 1583).

The chalk rubble produced antler picks, various animal bones, primarily of ox and pig, and flint chips or flakes, "...often many grouped together..." [Hawley, 1923: 13], and presumably representing the type of "ritual deposit" discussed earlier. These finds are generally recorded as from the floor of the ditch. Several sherds of Grooved Ware type were also recovered from the "primary" silt, near the southern causeway.

The beaker sherds were recovered from the top of the silt layer, and the "Stonehenge layer" above. The vessel represented by sherds nos. 1716-34 (Clarke's 1047) is an S₂(W)/"middle" type beaker, which was recovered from section 1 of the 1925 excavation [near

the entrance, see Hawley, 1928: 150]. A further sherd was found in section 5 of the 1922 excavation, in the upper layer [adjoining section, see Hawley, 1922]. The vessel, sherds nos. 1752-74, 83-84 (Clarke's 1048) is a W/MR, "early" type, recovered from section 6 of the 1925 excavation [near Aubrey Hole 6, see Hawley, 1925, op. cit.]. These two beakers were both resting on the top of the silt layer, and would seem to represent in each case the deposition of a single, entire vessel, possibly inverted, as only rim sherds were recovered. The remaining sherds come from the "Stonehenge layer," and are of "early" type.

The position of beakers 1047-48 accords well with the "beaker burial" recovered from layer 5 of Evan's excavation. This inhumation, discovered during the collapse of the ditch section, was of a male, aged 25-30 years, placed in a pit (layer 5). The burial included several barbed-and-tanged arrowheads, which appear to have been responsible for the man's death.

...traumatic pathology is manifest throughout the thorax. A small fragment of flint, apparently the tip of a projectile point, is embedded in the posterior surface of the mesosternum...three ribs bear further evidence of similar penetrating injury... [Evans, 1984: 15].

On the man's left forearm was a bracer, of Clarke's type A1 [Clarke, 1970: 570], a type which has associations with "middle" beakers at Glenforsa, Mull [op. cit., 362]. The radiocarbon date obtained from the femur of the skeleton, 1765 \pm 60 b.c. (BM 1582), would be in keeping with beakers of this type.

Also recovered from the silt layer were a number of cremation deposits, some in "cists" extending into the "bottom" layer, or into the chalk bedrock, but all,

apparently, originating in the silt above. Some of the "cremations" consist of a scatter of cremated bone through the silt layer (as in section 19 of the 1925 excavations) often accompanied by animal bones. "Fire stains" also occur in relation to these deposits. The cremations appear to begin at a lower level in the silt than the beaker fragments, although this is not certain, and it is possible that at least one of the "cist" deposits originated at the top of the silt. The cremations also seem to pre-date the bluestone fragments, which, from Hawley's accounts, occur first at the top of the silt, contemporary with the beaker sherds, "...stone chips were present in the upper layers but disappeared below 25 inches..." [Hawley, 1921: 34].

In his 1954 excavations, Atkinson found bluestone chips at the top of the chalk rubble, which led him to suggest that the bluestones must have been at Stonehenge at an early stage in the construction [Atkinson, 1979: 24]. However,

...re-cutting of a section across the ditch first made in 1954 revealed a burial of beaker age...the fragment of bluestone just above the thin earthy layer was in the filling of this grave, and does not mark the level of the silting when the bluestones first arrived... this is much higher up... [Atkinson, 1979: 215].

There is no further evidence to suggest that the bluestones occur lower in the ditch than the top of the silt, contemporary with the "early-middle" beaker fragments (c. 1800 b.c.).

Both Hawley and Atkinson considered the cremations in the ditch, in and beside the bank, and in the Aubrey Holes, to be part of the same "cremation cemetery"

phase (Stonehenge I). The Aubrey holes form a ring of 58 pits, concentric to, and probably contemporary with, the ditch and bank. It is difficult to date their construction, however, as the majority of those excavated have been filled or re-filled with a mixture of cremated bone, wood ash and chalk rubble. A few holes have clean, loose chalk rubble at the bottom. A sample taken from the cremation layer, Aubrey Hole 32 was radiocarbon dated to 1848 ± 275 b.c. (C 602). "Foreign stone" chips (bluestone, sarsen) were recovered from the cremation layer, but not below, "...in no case did blue stone or sarsen chips go down to the bottom..." [Newall, 1929: 83]. This would correlate the cremations with those of the upper level silts (layer 5 and 6) in the ditch. The radiocarbon dates for layer 5, 1765 ± 60 b.c., and Aubrey hole 32 overlap within one standard deviation, although the nature of the cremation deposits suggest that there is little accuracy in the Aubrey Hole date. The "Stonehenge layer," as over the rest of the site, covers the top 18"-20" of the Aubrey Hole deposits.

The holes may have originally held timber posts, as at a number of other henge sites. Hawley, in excavating hole 19, underneath the "South Barrow" (stone 92) ditch, noticed that "...the crushed depression on the side, observable in most of the other holes, was larger than usual, being 25" wide and extending down to 22"..." [Hawley, 1924: 37]. It is possible that this "crushed depression" is a ramp, similar to those found at Arminghall. R.S. Newall, who assisted Hawley throughout most of his work, noticed that frequently the cremation layer

...was encountered....on the inner side, continuing in a downward slope to the opposite side and bottom...if, however, a wooden post stood there, its gradual decay

would cause the cremation to dribble down, and the stones and earth at the top would fall in and generally reproduce the description of the hole given above... [Newall, 1929: 83].

This description would require the cremation deposits to have been placed in the postholes while the timber posts were still in use. An alternative explanation would be that the cremations were cut into the tops of the decayed posts, as at North Mains.

Hawley recovered a great many postholes from the interior, some of which, particularly those between Y holes 9 and 11, and Z holes 7 and 11, appeared to form parts of possible timber circles, reminiscent of those found at Balfarg. The holes between Y9 and Y11 were associated with a pair of parallel linear ditches lined by postholes, which appear on Hawley's plan as an avenue-like-structure. These postholes are overlain by the stone holes of the various stone circles, and may belong to the same period as the Aubrey Holes, or to a pre-henge phase.

Several parallel rows of postholes, cut into the chalk, were discovered by Hawley, transversing the entrance causeway. These holes appear to go up to, but not beyond the edge of the ditch, although it would be difficult to detect any which might have been in the ditch terminals, due to re-cutting, as mentioned below. They contained nothing to indicate date. A further row of four postholes (structure A) were uncovered in the avenue, perpendicular to the Heel Stone ditch. One of these was overlain by the avenue, which is radiocarbon dated, on antlers from the avenue ditches, to 1770 ± 100 b.c. and 1728 ± 68 b.c. (HAR 2013, BM 1164).

Atkinson correlated the avenue to Stonehenge II, on the basis of its axis, which coincides with that of the bluestones in the Q and R holes (II), and the sarsens (IIIa), and on his interpretation of the sequence of activity at the ditch terminals, based on his and Hawley's excavations. Hawley examined the ditch around the entrance in his 1924 trenches, and discovered that

...the rubble layer on top, containing Stonehenge chips etc., was still present and very definite, but under it, instead of silt, there was clean white chalk which had been brought from elsewhere and cast into the ditch... [Hawley, 1924: 30].

This white chalk layer occurred on both sides of the entrance causeway; on the northwest side it was divided into two by a layer of "wood ash". Cremated remains of an adult and child were recovered from the upper chalk [probably upper layer 6, as identified by Evans, see Evans, op. cit., 10, 13]. It is interesting to note that Evans, whose 1978 section began from this point, recorded Hawley's "wood ash" layer as "...probably a weak soil...as infilling slowed, vegetation became established..." [ibid.]. The environmental evidence from this section, Evans argued, reflected an abandonment of the site in the overlying layers (7 and the lower part of 6). On the southeast side of the ditch, a stone hole, whose relationship with the ditch is uncertain, was discovered at the edge of the ditch terminal. It was also filled with white chalk rubble, and contained bones of a child, and blocks of sarsen.

Atkinson interpreted this clean chalk layer as a deliberate re-filling of the ditch terminals, "...in order to bring the width of the entrance into line with the width of the avenue..." [Atkinson, 1979: 73]. A filling of this nature would necessarily make the

recovery of the postholes of the causeway, if they had continued into the ditch, difficult.

The stone hole at the edge of the southeast ditch terminal is a mystery. It may have held a sarsen, and unless it stood upright through the bank, dated to after the ditch was refilled.

Atkinson's interpretation of the stone setting inside the ditch consisted of first, a double bluestone circle, set in the Q and R holes, and the four "Station Stones" (period II), followed by a sarsen circle and horseshoe "trilithons" (IIIa), double bluestone circle in the Y and Z holes, and oval inside the sarsen horseshoe, making up the "dressed bluestone" setting (IIIb), and finally a bluestone circle and horseshoe, each inside their corresponding sarsen structure (IIIc), as can be seen presently. This interpretation was based on several known stratigraphic sequences:

1. the present bluestone circle (IIIc) stands in the "dumb-bell" shape trench of the Q and R holes (II).
2. Q hole 4 (II) is cut by sarsen stone hole 3 (IIIa).
3. stone 68 of the bluestone horseshoe (IIIc) cuts the ramp of sarsen stone 56 (IIIa).
4. Z hole 7 (IIIb) cuts the ramp of sarsen stone 7 (IIIa), Z hole 2 cuts the ramp of sarsen stone 2.
5. the "south barrow" (Station Stone 92) ditch overlies Aubrey Holes 17 and 18, and cuts hole 19.

Of these structures, it seems likely that the circles of Q and R holes were never finished [see Atkinson, 1979: 204-6], and that the Y and Z holes never held stones [Hawley, 1925: 27].

There is very little artefactual evidence to further distinguish the stone phases: the Q and R holes were

re-filled with dirty rammed chalk, and one appears to have contained two beaker sherds [Atkinson, 1979: 91], however these could not be identified. They may be among those labelled "area within the stones," (ie. within stones 32-46 of the bluestone circle) excavated by Hawley in 1926 [see Hawley, 1928: 167-71], but more likely come from Atkinson's excavations. It is unfortunate that Atkinson's material was unavailable for study, so that no further comment on these sherds can be made. The sherds identified from Hawley's excavation in this area are all derived from the upper layer, 15"-19" deep, the "Stonehenge layer." Sherds 300, 302-4 from section 1 [§see fig. 50, pp. 564] show a crosshatch decoration, while 334a, from section 5 would appear to be a classic W/MR rim. These sherds are in keeping with the general "early"- "middle" nature of the beaker material from the site. A number of beaker sherds are labelled as having come from stones 1 and 30, 2, 6 and 7, 8 and 9 of the sarsen circle. Analysis of their grid letters (Hawley divided up his sections by means of an alphabetic grid system), however, would indicate that most were derived from the general area of those particular stones, and not from the stone holes proper. It is difficult to identify the stratigraphic sequence of soil layers from the stone holes with any certainty; Hawley's layers are not layers in the current archaeological sense, rather "...the soil was removed in layers according to datum level...usually 6" at a time..." [i.e. "spits," Hawley, 1921: 20]. It would appear that the sarsen stone holes and the Y and Z holes consisted essentially of two layers: an "upper layer" of flinty/earthy chalk rubble and humus, and a lower layer of loose chalk rubble. The "upper layer" had as its upper part the ubiquitous "Stonehenge layer," which could sometimes extend quite deeply into the hole filling, or form the entire fill.

This is the case with Y hole 30 [see Hawley, 1925: 37-8, hole Y], which would render the radiocarbon date for the antler pick from its base, of 1240 ± 105 b.c. (I 2445), tenuous for dating Stonehenge phase IIIb.

The area of the sarsen stones produced a number of beaker sherds, but unfortunately most are derived from the "Stonehenge layer," mixed in with three millennia of accumulated rubbish. The decorative techniques, although not specific to the "early" beaker period, would suggest "early" types: all-over comb and comb-zone, neck cordons, chevrons of Clarke's basic pattern ten. The sherds are small, worn, and often scattered, as for instance, sherds 215-24 and 298d [fig. 50, pp. 564], representing a comb decorated vessel with a rim cordon, sherds of which were recovered from the area of stones 30, 1 and 2. There has been considerable disturbance around the stones, some of which Hawley ascribes to rabbits [Hawley, 1926: 8], some due to later destruction, and some due, no doubt, to excavational technique. One stab decorated sherd (149, grid ref. W.U.e.i. to 32") may possibly come from deep within the stone hole of stone 6, but this cannot be ascertained with any certainty. The radiocarbon date for the sarsen structures (IIIa), from an antler recovered from the ramp of stone 56, of 1720 ± 150 b.c. (BM 46), would not preclude beaker from being present during the construction of this phase.

Beaker sherds were also recovered from the Y and Z holes, again from the "flinty humus," in conjunction with the "Stonehenge layer." Sherd 3013, from Y hole 1 has comb and fingernail decoration of the "rusticated ware" type, while sherd 4259, from Z hole 10, has triangular stab impressions. It is interesting to note, that (of the material available for inspection)

only one sherd, from the Heel Stone ditch "Stonehenge layer," has cord decoration--an all-over cord sherd from the topsoil.

With regard to the date of the Y and Z holes, which cannot, for reasons mentioned above, be taken to be equivalent with the radiocarbon date from Y 30, analysis of the finds reported by Hawley [see Hawley, 1925: 37-50] suggests a distinction between the type of material in the upper flinty/chalky/earthy rubble, and the lower loose chalk rubble. While the upper layer would appear to contain all the elements associated with the "Stonehenge layer": chips of quartzite, sarsen, rhyolite, diabase, shale, worked flints, pebbles, hammer-stones, Romano-British and "Bronze Age" pottery, the lower layer would appear to contain antler picks, worked flints, bone fragments, and in almost all cases, one or two rhyolite chips at the very bottom. Sarsen is not found in the loose chalk rubble of the lower (primary) layer; this might suggest that the Y and Z holes belong to a period before the sarsen stones were erected, however this would contradict the known stratigraphic sequence.

What seems more likely, considering the depth of the flinty humus/Stonehenge layer in the sarsen holes, the Y and Z holes, and over the site in general, and the lack of finds in the lower layers of both the stone holes and the ditch, is a practice of either cleaning or re-cutting, such as is known at other sites (for instance Avebury). This could result in the extensive re-deposition of material as seen in the Stonehenge layer, and the paucity of finds in the levels below. Taking this view, the radiocarbon date for Y hole 30, 1240 ± 105 b.c., on an antler pick sealed by the

Stonehenge layer, could provide a terminus post quem for this layer.

Reconsidering Atkinson's sequence of events, based on the above evidence, a number of alterations can be made. The clean chalk rubble in the lower levels of the ditch is most likely to represent one or more episodes of cleaning and/or recutting activity (recognized by Atkinson in the area of the ditch terminals). At some stage, c. 2400 b.c. (BM 1583, BM 1617), the ditch was cleaned, and organised deposits of flints, antler picks and animal bones were placed in the bottom, before it was refilled (or backfilled) with clean chalk rubble. The possible timber circle of the Aubrey holes may also belong to this stage of modifications, with chalk rubble being used as packing around the posts. Other possible timber circles and/or structures may have belonged to this period, but their existence is not substantiated. This phase would include the "primary silts," ditch layers 9-10, from which sherds of Grooved-Ware type were recovered.

Atkinson included in period I the erection of the entrance stones, Heel Stone and possibly the Station stones, and the cremations in the Aubrey Holes, ditch and bank. The stone structures are undated, either stratigraphically or chronologically, and therefore cannot be placed in the sequence with any certainty, however, there is a precedent for "lithicisation" of henge monuments (Mount Pleasant, The Sanctuary, Overton Hill), which might suggest that these structures belong to the succeeding periods. For reasons outlined below, the Aubrey Hole cremations should also be disassociated from this period.

Following the modification of the ditch and bank, and the erection of the timber circle, it would appear from the environmental evidence that the site was abandoned during zone C [layers 7 and lower 6, see Evans, 1984: 27]. This is a significant departure from the Atkinson sequence, and might account for the occurrence of "tree holes" [holes F, G and H, Atkinson, 1979]. This new period would lie somewhere between c. 2000 b.c. and 1800 b.c., when the next phase of activity began.

In period III the "lithicisation" of the monument began, in a sequence incorporating several changes of plan, all within a relatively short space of time, in terms of radiocarbon years. The events would appear to be much as outlined by Atkinson; the bluestones in the Q and R holes, never completed and replaced by the sarsens, circle and horseshoe, and bluestone oval, then the Y and Z holes and the present bluestone structures. The avenue also belongs to this period of reconstruction. The radiocarbon dates for these settings all overlap within one standard deviation, and are therefore statistically contemporary, falling within the period of c. 1800-1600 b.c.

The sequence between the stone structures and the ditch silts can be tied together on the basis of the radiocarbon date from the "beaker" burial, layer 5, the occurrence of bluestone chips in the upper part of layer 6 and layer 5, and the beakers of "early/middle" from the top of the silt, matched by sherds from sarsen stonehole 6 and the Q hole. The cremations in the ditch appear to originate in layer 5-6, and it would seem reasonable to correlate them with the Aubrey Hole cremations, which also contain bluestone chips, and have a radiocarbon date which falls within this phase.

The Station Stones and the Heel Stone may also belong to period III; they both are surrounded by ditches which overly period I features.

There is considerable disturbance of some of the period III features, notably the Y and Z holes, and it is possible that some sort of further cleaning/re-cutting activity may have taken place. Over this the "Stonehenge layer" accumulated, possibly beginning c. 1250 b.c. and extending into the present. This period IV activity would be contemporary with the tertiary ditch silts, layers 1-3, and the extension of the avenue, dated to 800 ± 100 b.c. and 1070 ± 180 b.c. (I 3216, BM 1079).

The revised sequence then is;

1. pre-henge activity; numerous features (?structure A, timber avenue).
2. period I; cleaning/recutting of ditch, placing of ritual deposits on ditch bottom, then refilling with chalk rubble. ?associated with Grooved Ware. erection of timber circle in Aubrey holes. c. 2400-2200 b.c.
3. phase II; possible abandonment of the site.
4. phase III; "lithicisation" of henge with series of stone settings in the interior (Atkinson's III - IIIc), creation of the avenue, c. 1800 b.c. cremation deposits in Aubrey holes, secondary fill of ditch (Evan's layers 6-8), associated with "early" beakers.

the later part of this phase is associated with the "beaker burial" and deliberate deposit of two complete "early" beakers in the top of the silts (layer 5). it may culminate with the modifications to the Y and Z holes, c. 1250 b.c.

Milfield North, Northumberland

Milfield North is a class II henge monument with possible external bank, entrances north and south, and an additional causeway to the south east. It is part of a complex of monuments in the Milfield Basin, investigated by A.F. Harding between 1975-78. Along the same line, in association with a cursus structure, are the henges of Marleyknowe, Coupland, Milfield South, and Whitton Hill. Of these, Milfield South and North were excavated, but only Milfield North produced prehistoric pottery.

The excavations at Milfield North took place during 1975 and 1977, when "...virtually the whole of this monument was exposed at subsoil level..." [Harding, 1981: 101]. Three large internal pits, and both an internal and external pit circle were discovered [see fig. 12, pp. 103]. Beaker pottery was recovered from pit B, and from section g of the ditch.

Harding interpreted the sequence of events as a single period of activity, beginning with the digging of the "exterior" pit circle (pits I-XI). Post-pipes were recovered from pits I, III, V, VIII-XI (unfortunately, it is difficult to see these on the plans, fig. 13). The fill of pit III in its upper layer contained "...gravel that looks very much like natural but had a rather disturbed appearance and elsewhere overlay part of the pit fill..." [*op. cit.*, 101, see fig. 13]. Harding thought that this must be bank material, re-deposited while the posts were still in position. "...the clear implication of this section is that substantial posts protruded into or even above the bank..." [*ibid.*].

Following the erection of the timber circle, the ditch was dug and the bank piled up. Two radiocarbon dates were taken on charcoal deposits from section g [see fig. 16, pp. 107], from g6, at the ditch bottom, 1851 ± 62 b.c. (BM 1150), and g3, 1/2 up in the silting, 1824 ± 39 b.c. (BM 1149) There is a great deal of variation in the lower layers of the sections, particularly in section g, where the profile would appear to indicate "dumping" of material. "...the irregular lumps of silt in section a suggest further that loads of material were deliberately dumped in the ditch..." [op. cit., 108]. This interpretation would agree with the radiocarbon evidence.

The next event was the digging of the central pits and the pit circle. No post-pipes or other traces of posts were recovered from the pits in the circle, however, with reference to Durrington Walls, the pits are very shallow, 0.13-0.39m, and evidence for post may have been lost. Of the central pits [figs. 18-21], pit A contained a cist (empty), while pit D had a carbonized layer near the bottom, which Harding suggested may have been a wood plank. In pit B, upright slabs and stone-packing may indicate the remains of a cist. From the stone-packing, forty beaker sherds, making up beaker P1 [fig. 23, pp. 114] were recovered. This is a step 5, "middle" type beaker, with fingernail rustication. Pit C, the most central, also held several large stones, and below them a globular, type 3, Food Vessel [fig. 23.P5]. Charcoal from this layer gave a radiocarbon date of 1800 ± 80 b.c. (HAR 1199), indistinguishable from the dates for the ditch. The beaker sherd from ditch section g is not further identified, nor can it be distinguished as to type.

While it is possible that all the structural features can be incorporated into a single period, it is also possible to interpret them as a sequence of activities, with at least three phases;

1. external pit circle (pits I-XI),
2. ditch, bank and internal circle
3. burials in the interior

There appears to be little correlation between the axis of the circle formed by the external pits and that of the ditch and internal circle. If the outer circle pre-dated the ditch and bank, it would no longer be necessary to postulate that the timber posts protruded through the bank (a feature unknown at other henge sites). The incorporation of "bank material" in the tops of the post-pipes would then be the result of the placement of the bank over the disused postholes.

The ditch silts have almost certainly been fairly extensively disturbed, with a number of possible recuts occurring [see sections c & d particularly, fig. 16]. This activity would effectively invalidate the two radiocarbon dates (BM 1149, BM 1150), for dating ditch construction. It might provide a (fairly tenuous) date for ditch modification, in conjunction with the internal burials (pit C, HAR 1199), if the charcoal section g and pit C were the result of one phase of burning.

Considering the central "burials" (although no bone was recovered), it is interesting to note that, as at North Mains, Strathallan, the beaker burial is in "secondary" position in relation to the Food Vessel pit. The date of c. 1800 b.c. (HAR 1199) for the Food Vessel is comfortably within the range for step 5 "middle" beakers, which may indicate that the pit B beaker is a satellite rather than a secondary (e.g. later) burial.

Llandegai B, Gwynydd

Llandegai B is a class II henge with possible external ditch and entrances to the east and west. This site is located to the south-west of henge A (class I), which produced a radiocarbon date of 2790 ± 150 b.c. (NPL 220) for its "primary" phase. The site was excavated by Christopher Houlder in 1968, and remains unpublished, except for a short note in Antiquity [Houlder, 1968: 216-22]. He interpreted the sequence of activity on the site as follows:

1. Neolithic settlement in the form of two (?) rectangular structures, overlain by henge bank and ditch. plain bowl Neolithic pottery recovered from postholes [see Houlder, 1968, fig. 1].
2. construction of bank and ditch.
3. burials in central cremation pit, also possibly in three pits near south-east entrance, with three beakers, and pit outside south-east entrance.
4. Iron Age occupation in the form of a "squatter's hearth," upper levels of ditch.

There is no indication given of the time span between events 2 and 3; they may be contemporary, although Houlder clearly felt the ditch and bank came first [op. cit., pp. 218]. The three beakers represent "middle/late" types. The two illustrated in plate XXXI.b are both step 7 (S₃) type, while the third is probably step 5-6, although it is too crushed to be accurately identified. The beakers are considerably restored, and the extent of edge wear on the sherds may indicate that they were already broken before they were deposited. Sherds of a Bronze Age urn were also recovered, from feature F147, however, this feature is not identified. It seems likely that this site

parallels northern henges, where the burial deposits post-date henge activity proper.

Figsbury Rings, Wilts.

Excavated by M.E. Cunnington in 1924, the inner ditch at Figsbury rings probably represents the remains of a class II henge, with entrances to the ENE and WSW, and a possible exterior bank. The bank was removed and the ditch recut to provide building materials during Iron Age remodelling of the site [see Cunnington, 1925: 55, fig. 1, which shows ditch recut].

Cunnington discovered a number of internal features [op. cit., site plan, facing pp. 58], some of which may represent post- or stone holes, especially those labelled A to I. Holes A and I produced beaker sherds, while holes H and D produced sherds identified as "...of All Cannings Cross type..." [i.e. Iron Age, op. cit., 54], but re-identified by Guido and Smith as Grooved Ware [Guido, 1982: 23]. The condition of the Grooved Ware sherds, and nature of the deposits suggested to Guido and Smith that they represent "primary" deposits, while

...the beaker fragments from 'A' and 'I' were probably derived; there was an Iron Age sherd in 'A' and the numerous burnt flints from 'I' suggest the kind of activity recorded from Iron Age contexts... [ibid.]

The number of these features recovered is too few to suggest a pattern. It would be tempting, however, to speculate on holes A, C, and I forming a circle, parallel to a number of other henges, for example

Balfarg, which also has Grooved Ware from the postholes.

Beaker sherds were also recovered from the recut inner ditch, almost certainly disturbed from their original position, as Iron Age pottery was recovered from the same levels. The sherds are very similar in all respects, and probably represent at most three different vessels. They would appear to be of "early" type, possibly W/MR, and it is interesting to note that most of the sherds are base sherds [see Guido, 1982, fig. 2, pp. 24], which might suggest that the beakers were deposited right-side up. A fragment of Collared Urn was also recovered from the ditch.

Any attempt at a sequence of events would only be speculation, however, on the basis of parallels with sites such as Woodhenge, it could be tentatively suggested that;

1. "phase 1:" incorporated the ditch, bank, and possible timber circle(s), associated with Grooved Ware,

2. "phase 2:" included deposits of "early" beaker in the postholes (probably in the upper levels), and placement of ?entire "early" beakers in the middle ditch silts.

Dorchester I, Oxon.

The Dorchester I henge is one of a group of henges and hengiforms, together with other site types, excavated by R.J.C. Atkinson, C.M. Piggott and N.K. Sandars between 1946 and 1949 [Atkinson *et.al.*, 1951].

Site I consisted of a penannular ring of thirteen pits, with entrance to the west, surrounded by an oval ditch and internal bank, all enclosed within a square

ditch. These features belonged to stage I of the monument, and were associated with "plain bowl" Neolithic (Abingdon) Ware. Stage II was represented by the recutting and enlargement of the oval ditch, and possibly the deposition of four cremations in or beside the central holes. This stage was associated with Peterborough Ware.

The central holes did not appear to have held posts [see Atkinson, 1951: 11, fig. 7], and at least two (8 & 11) were clearly recut by cremations. Sherds of beaker, along with Abingdon ware, were recovered from hole 3 [op. cit., pp. 110, no. 51 and pl. Xb.51, note that the catalogue nos. do not match the accession nos.]. One sherd was decorated with stab impressions [see illust.], the shape of the others would indicate an "early" form. The position of these sherds within the hole was noted as "from the filling" [ibid.], which would imply that the Abingdon ware sherds and beaker sherds were recovered from the same general level. This might imply a fairly disturbed stratigraphy, possibly related to the ditch recut stage (II).

Dorchester II, Oxon.

Site II; to the NE of site I, consisting of three structural phases [op. cit., fig. 9, facing pp. 21]:

1. circular ditch, left incomplete
2. ditch with internal bank, outside and concentric to ditch 1, dug as a series of causeways
3. second ditch with internal bank, also causewayed, dug on top of refilled ditch 2, and associated with a series of cremations in bank and centre of circle. associated with Peterborough Ware.

A sherd of a possible beaker base, undecorated, came from the upper filling of pit D, which also contained wood ash, charcoal, and cremated bone. This feature could not be securely related to any other feature of the site, although Atkinson felt it might belong to the same stage as the cremations [III, op. cit., pp. 32].

Dorchester XIII "Big Rings"

The "Big Rings" is a double ditch class II henge, located to the southeast of sites I-VI [Allen, 1938: 170, fig. 20]. Both ditches appear to have internal banks, and entrances to the north and south. The site was excavated by Atkinson and N. Thomas between 1950-52, but has not yet been published, except for short notes in Oxoniensia [Atkinson 1950-52]⁷⁰.

Both ditches were found to be flat bottomed, and Iron age pottery was stratified 18" above the bottom in the outer ditch [Atkinson, 1951: 103]. No interior features are recorded, but 'A' and 'B' beaker sherds were recovered from the ditch terminals of the southern entrance, found "...in the occupation debris in the lowest layer of silt..." [Atkinson, 1952: 216].

Excavation of site XIV, within the southern entrance between the two ditches, revealed a circular ditch with internal bank, enclosing a four post square structure, "presumably the remains of a ritual building..." [ibid.]. The only finds were a cremation and a Group I axe. "It was possible to show, however, that site XIV had been abandoned before the Big Rings were built, and

⁷⁰however a report is expected soon. Thanks to Drs. Atkinson and Alisdair Whittle for allowing this information to be used in advance of publication.

is therefore likely to be pre-beaker in date..."
[ibid.]

Section 4 [§see fig. 51, pp. 568] shows a probable Iron Age recut, extending to the base of the ditch. Beaker and Iron Age sherds are mixed in the gravel layer. In sections 5 and 8 [§fig. 51, op. cit., ?projected in section 8] there is a layer of gravel fill extending from the outer edge of the ditch to the centre, which may represent some form of infilling. Particularly interesting is the "red earth" on the floor of the ditch in both sections. It is possible that this may represent the original "primary silt," which has been truncated first by "beaker period" deposits and later by Iron Age activity. The Peterborough Ware sherds recovered from upper levels of the ditch fill may initially have belonged to this layer.

Beaker sherds from the (then) secondary silts would appear to represent individual vessels (with the exception of sherds 8 & 9, which are one vessel). All but one appear to be of "middle" or "late type" [§see fig. 52, pp. 569]; the exception is sherd 1, which may be from an "early" W/MR pot.

Again, a tentative sequence may be suggested:

1. pre-henge phase, incorporating the construction, use and abandonment of site XIV.
2. construction of ditches and banks. primary silt associated with Peterborough Ware (?possibly also site XIV, on parallel with mortuary enclosures at other henge sites)
3. cleaning/recutting, refilling associated with "middle" beakers
4. Iron Age activity.

Summary

A number of features can be detected, which are common to beaker deposits on the henges discussed above. Briefly summarized, they are;

1. deposition of beaker sherds primarily in the middle to later ditch fills, frequently (if not always) associated with a "Late Neolithic" cleaning/recutting/refilling phase, or with other modifications to the site at this period.
2. association of beaker material with the lithicisation of timber settings, or with the addition of stone settings to the site. this is particularly the case with southern henges, and "early" beaker types⁷¹.
3. placement of beakers in "burial deposits" in ditch silts (e.g. where a vessel or vessels appears to have been placed entire in the ditch silts) or within actual burial contexts, usually associated with the smaller henges, and with the more northern and western sites. In the case of actual burial deposits, these are usually associated with the modification of the henge into a "burial place" (for example a cairn with cists, or a cremation cemetery).
4. the above (3) hints at a dicotomy between the larger southern sites, with a greater proportion of "early" beaker material, and the smaller northern sites, with a greater proportion of "later" beaker material. this is particularly true of the modification of northern henge sites into "burial places" where the associations are exclusively with "middle-late" beakers.

⁷¹it is interesting to note, in conjunction with this, that the late beaker at Balfarg is not associated with the lithicisation of the timber setting, but with the ?subsequent addition of a cist burial.

Chapter 7: Causewayed Enclosures⁷²

Windmill Hill, Wilts.

...the field monuments of the culture fall into three classes, the first being the earthwork enclosures consisting normally of more than one ring of bank-and-ditch construction set concentrically, with the ditches made in a peculiar discontinuous fashion so that they are interrupted by frequent causeways of undisturbed soil. Of these causewayed camps as they have come to be called, Windmill Hill is one of the most important... [Piggott, 1954: 17].

The causewayed camp at Windmill Hill has three rings of discontinuous ditches, separated by areas varying from 125 to 260 ft. in width, and enclosing a total area of c. 21 acres. The Outer Ditch retains the traces of an internal bank, and the deposition of chalk rubble in the Middle and Inner Ditches would suggest that they may also have possessed internal banks. The only apparent entrances to the site are formed by the gap between sections XVI and VII of the Inner Ditch, and XII and the adjoining section of the Middle Ditch, facing north-west [Smith, 1965, fig. 3].

The site has been the subject of several excavations, the first being that of H.G.O. Kendall in 1922-23, who examined a terminal of the Outer Ditch, to the east of Outer Ditch I [*ibid.*]. The second, and largest excavation was made by A. Keiller and H. St. George Gray, between 1925-29, during which they opened sections I-XVI of the Inner Ditch, I-XI of the Middle Ditch, and I-III of the Outer Ditch. The 1925-27 ditches were cleared in horizontal spits of fixed depth; surface - 0.8', 0.8'-1.4', 1.4'-2.3', 2.3'-3.5', 3.5'-bottom. Keiller, who took over direction of the

⁷²see §fig. 53, pp. 571, for a location map of causewayed enclosures with beaker deposits.

excavations in 1927, had the 1925-6 sections re-excavated, recovering a substantial number of artefacts (these are sections I Ib, IIIb, III-IV, IVb, Inner Ditch, I Ib and IVb, Middle Ditch). During 1928-29, sections were excavated by 1' spits, and each spit was recorded on a separate "layer chart", all of which are lost, along with the finds from those seasons. However, a section drawing made from these charts, of Outer Ditch III, was published by S. Piggott, who worked on the site [1954, pp. 23, fig. 4].

Further excavations were made by I.F. Smith in 1957-58, of the Inner Ditch XVII, Middle Ditch XII and Outer Ditch IV-VI [Smith, 1959, fig. 1]. Beaker pottery was recovered from the following sections [§see tables 28-31, pp. 500-6, for a more detailed description of these deposits]: Inner Ditch I, I-II, III, IVb, VII, Middle Ditch I, II, I Ib, III, IV, Outer Ditch I, II (1925-29 excavations), Inner Ditch XVII, Middle Ditch XIII, Outer Ditch IV, V (1957-8). Smith recorded a further 30 sherds from Middle Ditch III, and a small number from Inner Ditches VIII-XVI (1928-29), which are now lost [Smith, 1965: 80].

A fourth season of excavation was undertaken by A. Whittle in 1988, the results of which are as yet unpublished, although further beaker material has been recovered from the upper levels of the Outer ditch⁷³. Three cuttings were made across the outer ditch circuit in 1988: trench B (adjacent to Smith's cutting V), trench C (adjacent to Smith IV) and trench A (a new cutting on the south side of the circuit. A total of 27 sherds were recovered: trench A; 5 from secondary silts, 1 from tertiary silts; trench B; 1 from

⁷³ with thanks to Dr. A. Whittle and Lesley Zienkiewicz for the use of their information.

secondary silts, 4 from tertiary silts; trench C; 11 from lower tertiary silts, 5 from upper tertiary silts.

Only inside the Outer Ditch is the bank still visible, with nothing remaining of the Inner and Middle banks, although it is "...the disposition of silts in these ditches, with the greater volume coming from the inner sides, that indicates where the banks originally stood..." [Smith, 1965: 5]. The Outer Bank sealed traces of pre-enclosure occupation, with pits, postholes, and pottery similar to that from the primary layers of the ditch [Smith, op. cit., chapter II]. Charcoal from this occupation layer, in Outer Bank section IV, was radiocarbon dated to 2950 ± 150 b.c. (BM 73).

The ditches were roughly flat bottomed, with weathered outlines. "...the Outer Ditch segments are the largest and deepest and those of the Inner Ditch the smallest and shallowest..." [Smith, op. cit., pp. 7]. The best preserved section was Outer Ditch V, which was undisturbed by modern ploughing [Smith, 1959: 156, see also §fig. 54, pp. 572]. The sequence here was:

- 1) layer 5; coarse, loose chalk rubble.
- 2) layer 4; smaller chalk rubble with earthy material.
- 3) layer 3; slow, Gray-brown silt.
- 4) layer 2; dark brown soil, 'ancient turf-line'.
- 5) layer 1; present turf-line.

Layers 4 and 5 represented the "primary silt", layer 3 the "secondary silt", layers 2-1 the "tertiary silts". Layers 3-5 contained "Neolithic A" (Windmill Hill and related wares) ware, with a sherd of Ebbsfleet style Peterborough Ware, from layer 5. A bulked charcoal sample, drawn from layers 4-5 of Outer Ditch IV and V, and Middle Ditch XII, produced a radiocarbon date of 2570 ± 150 b.c. (BM 74).

Layer 2 produced Peterborough Ware, along with Grooved Ware, beaker, Collared Urns, and vessels of mixed traditions [Smith, 1959: 159, fig. 6.6]. Charcoal from this layer, Outer Ditch V, was radiocarbon dated to 1540 ± 150 b.c. (BM 75). Layer 1 produced Romano-British wares, and one sherd of beaker, probably from a vessel in layer 2 (sherds 0107 & 0136).

The pottery from this section is recorded by Smith in her catalogue of the material from the 1957-58 excavations [see table 29, pp. 502, note; layers 3-5 are layer 4-6 in the catalogue]. She identifies sherds 0107, 0110, 0112, 0113, and 0136 as belonging to the "Necked" beaker group (steps 4-7, "middle" to "late" beakers). Sherds 0107 and 0136 are undecorated; sherd 0110 carries the Clarke motif 3:20, while 0112 combines motif 1:3 with 3:20 ["Late Northern British; see Clarke, 1970, II, pp. 424-28]. These motifs would indicate "middle" or "late" beakers, which would accord well with the Primary and Secondary Collared Urns, sherds 0115 [Smith, 1959, fig. 6.1] and 0120-21 [op. cit., fig. 6.3], and with the radiocarbon date, BM 75. It would, however, give quite a late dating to the sherds of Fengate ware [0119, fig. 6.4, 0122-0127, 0129-0132] and Grooved Ware [0133, fig. 6.8].

...in all other ditches the top layers have merged into one another so that the clearly separated deposits represented by layers 1 and 2 of Outer Ditch V can no longer be distinguished... [Smith, 1965: 12].

In the Inner and Middle Ditches layers 1-3 are largely conflated, due to ploughing and burrowing animals, which had "...disturbed the upper part of the filling to a depth of up to 2 ft. from the surface..." [Smith, 1959: 154]. This in part led to the great mixture of material of all periods in the upper few feet of every ditch, usually in the upper three spits

of the Gray/Keiller excavations: surface -0.8', 0.8'-1.4', and 1.4'-2.3'. This confusion is evident in the ceramic record [§tables 28-30, op. cit.], where the bulk of sherds of all periods is drawn from the upper three layers, or the top three spits.

This activity is not wholly the result of ploughing, however. First, there is the lack of any primary silt; rather there is large, loose chalk rubble found at the ditch bottom, indicative of cleaning/recutting and refilling activities. Second, there is the wide horizontal and vertical spread of sherds from the same vessel [see Smith, 1965: 14], where P178 was recovered from the bottom of Middle Ditch II, the top of Middle Ditch IV, Middle Ditch III and Outer Ditch XI, P83 from Middle Ditch X and Outer Ditch III, P233 from Middle Ditch X and Outer Ditch I. This, again, is indicative of the mixing of layers, probably through recutting activities.

The frequency and extent of these recuts during the Early Neolithic period cannot be determined, but at least one phase of recutting, in the Late Neolithic period can be identified, in layer 3 of Outer Ditch IV (and Outer Ditch III), and spit 2.3'-3.5' of Inner Ditch VII, layers which occur below the putative "plough-level". Smith stated that "...only in the deeper Outer Ditches I, III, and IV is it possible to distinguish a level where Late Neolithic sherds occur unmixed with Romano-British..." [Smith, 1965: 12]. This recut, apparent in Piggott's illustration of the Outer Ditch III sections [see above, fig. 4,], can be identified in the sherd distribution of these sections. In Inner Ditch VII, only "Neolithic A" ware occurs below 3.5', as in the case in all sections examined. In the 2.3'-3.5' spit, the "Neolithic A" ware is joined by "Neolithic B", beaker, and Early Bronze Age sherds

(? possibly beaker). In the 1.4'-2.3' spit, these types are joined by Romano-British wares, which are present in the subsequent spits. The situation is similar in Outer Ditch IV [Smith, 1959: 153, fig. 3], where "Neolithic A" sherds in layers 4-5 are joined by Grooved Ware and beaker sherds in layer 3, and Roman-British layers in layer 2. In both cases, the "Neolithic A" sherds continue to the surface.

The pottery from Inner Ditch VII, along with the "Neolithic A" ware consists of two undecorated sherds, and one decorated sherd of beaker, with Clarke's 2:12 ("Primary Northern British/ Dutch") motif, of diagonal comb lines. This is not particularly distinctive, but is found on W/MR, N/MR and N/NR vessels, and could be indicative of "early" beaker. Of the sherds from Outer Ditch IV, "...in fig. 3, three Late Neolithic sherds were still *in situ* in the soft dark grey upper silt..." [Smith, 1959: 154], of layer 3. Sherd 029 was Grooved Ware, 028 a stab-ornamented beaker, and 027 an undecorated beaker, both of which could be "early". It is interesting to note that these sherds occur in layer 3 below the layer 2 deposits which contain sherds of clearly "later" type (Outer Ditch V). These two layers, Inner Ditch VII and Outer Ditch IV, where evidence of the Late Neolithic recut can be identified, are the only sections where a possible "early" beaker component/phase can be detected, although the site has produced some further "early" beaker material.

The vast bulk of the beaker material from the site is of steps 4-7, "middle" and "late" beaker types [fig. 55, pp. 573]. The majority of these came from two large concentrations, in Middle Ditch IIb, and Outer Ditch II. Smith identified 435 sherds of fine ware and 82 sherds of coarse ware in her 1965 report, however these totals cannot be verified with the existing sherds, nor do they match the catalogues of

the 1925-27, and 1957-58 material (the 1928-29 material is not included, although Smith states that some 30 sherds came from Outer Ditch III). "...fourteen Bell Beakers can be recognized...most of the sherds on the site came from Long-necked beakers...between sixty and seventy individual vessels...can identified..." [Smith, 1965: 80].

Middle Ditch IIb contains a mixture of "early" and "middle" types; the "early" vessels are represented by P.5946, an all-over-comb sherd, P.5389-94, with horizontal comb lines and stab impressions, P. 5571-78, 5587-88, with zones of horizontal comb lines, and P.5559, possibly a W/MR type. "Middle" to "late" sherds, P.5386, P.5562, 5564-5 share the chevron motif of Clarke's "Southern British" motif group 4:29. The deposits from Outer Ditch II are almost entirely "middle" to "late" type, with the exception of one sherd, P.3972, of all-over-cord, from east of the causeway. A number of "developed" motifs are present [see illustrations], the chevron (Clarke 4:29) being common (P.3687-98, 3693). Clarke's "southern" types are most prevalent; compare P.3203 with Clarke 311, S2(E) from Brown Cadover, Hants., P.3172-3 with Clarke 366, S2 from Houghton, Hunts., P.3388, 3398, 3400 with 1164, S3(W), Wilsford 34, Wilts., P.3397, Clarke 47, S3(E), Barnwell, Cambs., P.3368-9, Clarke 64, S2(W), Chippenham 5, Cambs., P.3543, 3554, 3579, Clarke 1185, S2(W), Winterbourne Monkton, Wilts., P.3537, Clarke 1034, Amesbury 51, Wilts. Motifs of Clarke's group 5 (panels and metopes) are also present, in the vessel represented by P.3373, 3386-7, 3389, 3392, 3408 (Clarke 5:38i).

The remainder of the material is "simpler" stylistically, with motifs of groups 1 and 2 being most common. Only ten sherds are remaining from the Inner Ditch [and it seems likely that there were not many

more than this recovered, see Smith, 1965: 80], and these are of motifs Clarke 1:1 and 1:2. 101 sherds were recovered from the Middle Ditch, and here the "middle" and "late" types are more prevalent, although a number of "early" types appear also. The Outer Ditch sherds are overwhelmingly of "middle" to "late" type. There is no distinction to be made in size, or in stratigraphic placement, as all these sherds occur above the "plough-line" and are accordingly crumbled and worn. It seems, therefore, that the distinction may have been one of function and/or ritual.

Considering the entire pottery assemblage from the site, other distinctions in distribution of pottery types can be noted. The material consists primarily of Early Neolithic (Windmill Hill) and related wares, which represent 83% of the total assemblage. Romano-British, beaker and "Neolithic B" (Peterborough Ware and Grooved Ware) are roughly equal in frequency, 4-5%, while "post-Neolithic A" and "Early Bronze Age" wares make up 1.5% each. The Windmill Hill Ware, with the Ebbsfleet Ware, is distinct also in the number of complete or restorable vessels represented. This cannot be due alone to stratigraphic position, for the bulk of sherds of both groups lay in the upper 2', above the "plough-line", and sherds of the same vessel were recovered from different layers in different segments. Half of the Windmill Hill sherds recovered came from the Inner Ditch; 52%, as compared to 41% for the Middle Ditch and 5% for the Outer Ditch. Smith notes that "...Inner Ditch...is always found to contain a greater quantity of occupational material than the other two..." [Smith, 1965: 9]. It is interesting to note, therefore, that while the Outer Ditch contains only 12% of the total sherds from the site, it contains 70% of the beaker ware recovered, 80% of the "Early

Bronze Age" wares, 85% of the "post Neolithic A" ware, and 100% of the Bronze Age sherds. In the Outer Ditch, Windmill Hill ware, which normally accounts for more than 80% of the material, represents 37% of the sherds, recovered, while beaker represents 26%, "post Neolithic A", "Early Bronze Age" and Romano-British 11% each. As this sharp separation in distribution patterns of Early and Late Neolithic/Early Bronze Age types cannot be accounted for strictly by depth of deposit or preservation, it would seem likely, therefore, that some change in "ritual practice" took place in the Late Neolithic/Early Bronze Age period, whereby the focus for pottery deposition shifted from the Inner to Outer Ditches. While "Neolithic B" ware was concentrated in the Middle Ditch sections, and specifically in Middle Ditch IIb, from which the majority of Peterborough Ware was recovered, Grooved Ware, beaker and "Early Bronze Age" material concentrated in the Outer Ditch sections, and particularly in Outer Ditch II, where the most stylistically "complex" beaker seems to have been deposited.

The sequence at Windmill Hill could then be summarized as follows:

1. pre-enclosure activity, represented by pits and postholes, radiocarbon dated to 2950 ± 150 b.c. Associated with Windmill Hill and related wares, similar to those of the enclosure phase.
2. causewayed-enclosure phase, represented by the construction and primary use of three concentric rings of causewayed ditch and bank, associated with Windmill Hill ware and Ebbsfleet ware.

The nature of the loose chalk rubble on the ditch floor, and the deposition of the majority of Windmill Hill pottery in the "tertiary" ditch levels suggest cleaning and recutting activity, the terminal phases of which may be dated by the radiocarbon sample from layers 4-5 of the Middle and Outer Ditches, 2570 ± 150 b.c.

"Ritual activity" concerning pottery deposition would appear to be concentrated on the Inner and Middle Ditches during this period.

3. Late Neolithic/Early Bronze Age phase, marked by major recutting of the Early Neolithic ditches, as evidenced in the sections Inner Ditch VII and Outer Ditch III and IV. This is associated with layers 3 and 2, and with beaker, "Neolithic B" wares and "Early Bronze Age" wares. "early" beaker may underlie later material in the Outer Ditch.

The end of this phase may be dated by the radiocarbon sample from layer 2, Outer Ditch V, which marked the pre-historic turf-line in the ditch, 1540 ± 150 b.c. This date is associated with Primary and Secondary Collared Urns.

"Ritual activity" concerning pottery deposition would appear to be concentrated in the Outer Ditch during this phase, particularly in Outer Ditch II, which contained the highest concentration of "complex" beaker decoration on the site (the outer ditch, being the largest, would have been the most obvious at this period). Stylistically, beaker decoration would appear to grade from less to more complex between the Inner and Outer Ditches; since the sherds are derived from the same general level, this distinction may be functional/ritualistic.

- 4) above the turf-line, "Bronze Age" (late Bronze Age and Iron Age) and Romano-British material is deposited.
- 5) sometime in the early 19th century, ploughing began over most of the site [Smith, 1959: 149, and 162, note 3.]

Maiden Castle, Dorset

Maiden Castle is a double-ditched causewayed enclosure, encompassing the eastern knoll of the hill, and largely obscured by a multivallate Iron Age hillfort. The Neolithic enclosure was subsequently overlain by a "bank barrow" of Late Neolithic/Early Bronze Age date [see Wheeler, 1943, fig. 3, pp. 17].

The site was extensively excavated by R.E.M. Wheeler, between 1934-38 [1943: plate I, frontpiece,

and plates LXXIV, LXXXVII, XCIII, which show the excavations in progress]. Recent excavations, beginning in 1985, have been undertaken on the site by the Trust for Wessex Archaeology, under the direction of Niall Sharples.⁷⁴

The sequence of events on the site, according to Wheeler, was as follows:

1. causewayed enclosure ("Neolithic town ditch"), used by the "Neolithic A" population, on the eastern knoll.
2. Middle Neolithic "bank barrow", cutting across the causewayed enclosure, used by the "Neolithic B" population.
3. Bronze Age hiatus
4. Iron Age hillfort;
 - a) univallate, eastern knoll,
 - b) extended to western knoll,
 - c) bivallate,
 - d) multivallate
5. late Roman temple, c. 370 A.D.

Beaker pottery was recovered from the Neolithic causewayed enclosure ditches, the ditches of the Long Mound (bank barrow) and several Neolithic pits. These features were encompassed in Wheeler's sites A, F, G, L, Q, R and T.

1. Site A [Wheeler plate VI, facing pp. 89]. A section across the western causewayed enclosure ditch (shown as pit A2 on plan). Includes pits with Neolithic "occupation debris".
2. Sites F & G (plates XI, XIV, XV]. Under eastern entrance of Iron Age hillfort, sections across the eastern causewayed enclosure ditches.
3. Sites L and Q [plates III, IV, fig. 15]. Sections across the Neolithic Long Mound; L is an area, located at the eastern end of the north Long Mound

⁷⁴ Much of the information on the beaker pottery came from Dr. Ros Cleal's work for the Maiden Castle Project.

ditch, Q is a series of trenches across the north and south ditches. At the section marked A-B on plate III, the Long Mound ditch is superimposed on the causewayed enclosure ditch.

4. Site R [figs. 13, 14]. Sections through the inner and outer western causewayed ditches, below the Iron Age ramparts.
5. Site T [plate CXIX, T1-T9]. A series of Neolithic pits discovered under the outworks of the eastern Iron Age entrance. T1 and T7 contained sherds of beaker pottery.

The stratigraphic sequence in causewayed enclosure ditches and Long Mound ditches was in every case very similar. First was the rapid silt (crumbled chalk) which formed the "primary" layer, and which contained Early Neolithic material. In the case of the causewayed enclosure ditches "...the inner and larger ditch was by far more productive, and in every case the lower half of its filling contained relics exclusively of Neolithic A..." [Wheeler, 1943: 18-19]. This layer was followed by the gradual infilling of the ditch, through weathering of the sides, and "hearths" or "occupation-earths". These secondary silts contained a mixture of Early Neolithic material. Above this was the "uppermost fill", which in the Long Mound ditch consisted of two well marked occupation layers, containing Early Neolithic, beaker, Food Vessel, Collared Urn and Grooved Ware. Similarly,

...in the uppermost fillings of the old Neolithic settlement ditches, save where these were covered by the Long Mound, the mixed Neolithic and Early Bronze Age cultures are associated with the terminal deposits... [Wheeler, 1943: 23].

Those sections of the causewayed enclosure ditch sealed by the Long Mound contained only Early Neolithic material.

Wheeler's sequence of deposits was checked and confirmed by the Trust excavations in 1985 [Sharples, 1986]. Here three trenches were opened for the purpose of establishing the Neolithic sequence [op. cit., fig. 1, pp. 112]: trench I, across the Iron Age rampart, Long Mound, and causewayed enclosure ditch, trench II, across the Iron Age rampart and causewayed enclosure ditch, and trench III, across a series of Iron Age occupations, and the Long Mound ditch. The results were as follows [op. cit., trench I, fig. 2, pp. 113]⁷⁵:

1. ditch; earlier but similar to the causewayed enclosure ditch, possibly a recut.
2. causewayed enclosure ditch--
 - a) loose chalk rubble, "primary", with child burial. dated to 3090 ± 60 b.c. (BM 2449), 3080 ± 40 b.c. (BM 2450).
 - b) secondary silt with Early Neolithic artefacts, dated to 2850 ± 45 b.c. (BM 2447), 2760 ± 70 b.c. (BM 2448).
 - c) thin turfline
3. Long Mound ditch (north), overlying and adjoining causewayed enclosure ditch--
 - a) chalk rubble and silts, with artefacts derived from the causewayed enclosure ditch.
 - b) secondary silts (with one sherd of beaker)
 - c) dark organic fill, with mixed Neolithic and Early Bronze Age material
 - d) turfline

In trench II, the causewayed enclosure ditch was not covered by the Long Mound, and the uppermost layer contained the same dark "organic horizon", as trench I, and the Long Mound ditch in trench III. In trench III this organic horizon was dated to 1520 ± 70 b.c. (BM 2445). The lower layer in the Long Mound ditch (chalk rubble and silts) of trench II was dated to 2770 ± 100 b.c. (BM 2456).

⁷⁵the radiocarbon dates are taken from Sharples, 1987: 53.

The majority of beaker material in all cases appears to be derived from the top three Neolithic layers, the "uppermost fill", although it is evident from the state of the records that there is a body of material which can no longer be accurately identified. Some sherds were, however, recovered from the secondary silts, along with "Neolithic A" and "B"; from the "central fill" of the causewayed ditch in area R [Wheeler, fig. 34.120, pp. 158], which may belong with those sherds recorded in layer 5 on sections pp. 15 & 30, North and South Baulk, and from the "middle fill" of Sharples trench III, the Long Mound ditch fill. The first of these sherds may be early in type [see op. cit., fig. 34.120], the second is a sherd of all-over-cord type. Very few sherds of this type appear to have been recovered; two from Wheeler's excavations, both from layer 4 of area Q, section pp. 3, the Long Mound ditch, and possibly the same vessel, and a further sherd was recovered from the Bronze Age turfline of Sharples' trench III.

The greatest proportion of sherds illustrated are of steps 4-6, and along with some rusticated sherds, would appear to make up the bulk of the recovered material. A few sherd illustrations can be located on the section plans; in area R, pp. 15 & 30, North Baulk, sherd 242 [Wheeler fig. 34.121] was recovered from layer 4. Also from area R, pp. 31, sherd 303 [Wheeler fig. 34.122] was recovered from layer 3. In area Q, pp. 11, sherd 101 [Wheeler pl. XXIV.13] was recovered from layer 4, sherd 152 was recovered from layer 4, pp. 13 [appendix 1, fig. 17, Wheeler fig. 30.75], and sherd 272 [Wheeler fig. 30.74] was recovered from layer 4, pp. 23 [appendix I, fig. 20]. Sherds 242, 101 and 152 are rusticated, 303 and 272 are probably steps 5-6. All were recovered from the "uppermost levels" in both the causewayed enclosure ditch and Long Mound.

The remainder of the illustrated sherds cannot be ascribed to a particular illustrated section. There are a number of sherds which were recovered from Neolithic layer 1 in area G (causewayed enclosure ditch, eastern entrance); these are illustrated in Wheeler pl. XXIII, and are of steps 5-7 type. The sherds illustrated in pl. XXIV appear to come from layers 1-4 in area Q (Long Mound ditch), and would appear to be from steps 4-6. A number of the sherds illustrated from this area, and areas L and R, are rusticated ware. This may be due to a special interest by Wheeler in rusticated beaker pottery rather than a bias in type distribution (rusticated beaker sherds were specially marked on the section drawings). However, examining the total distribution of beaker on the site, the suggestion could be made that the latest material, both typologically and chronologically, and the most "complex" decoratively, would appear to come from layer 1 of areas F and G; the eastern section of the causewayed enclosure ditch, under the eastern entrance of the Iron Age ramparts. It is also interesting to note that most of the beaker sherds from area Q (whose locations could be identified) came from the eastern end of the the northern ditch, and the ditch terminal, the exception being sherds recovered from the western terminal of the southern ditch. This concentration of deposits within the confines of the causewayed enclosure ditch might indicate that, although deposition of beaker must have taken place well after the construction of the Long Mound, the causewayed ditch was still recognized as an "active" part of the monument. Deposits marking ditch terminals have been noted in relation to other sites, particularly henge monuments.

One further point remains to be considered; the stratigraphic and chronological sequence of deposition

of the ditch silts. With reference to the earlier discussion of silting at Overton Down, and at Windmill Hill, it would seem likely that the ditches at Maiden Castle also underwent a series of cleanings and/or recuttings, during both the Earlier and Later Neolithic. The "first" of these is almost certainly indicated by the "earlier" ditch in Sharples trench I, on a line with the "later" causewayed ditch. The occurrence of loose chalk rubble in the bottom of the causewayed camp ditch would appear to confirm that some cleaning and recutting had taken place (notice also Wheeler's report of the "cleanness" of the lower portion of this rubble). If this is the case, then Sharples' radiocarbon dates presumably mark the latest cleaning/recutting period, c. 3000 b.c., to reach that level (i.e. the bottom of the ditch).

At a period during which Early Neolithic wares were still in use (as nothing but "Neo. A" has been recovered from the causewayed ditches sealed by the Long Mound) two parallel ditches for the bank barrow were excavated, cutting into the causewayed camp ditches, and almost certainly re-depositing some material into the bottom of the new Long Mound ditches. This can be seen by the very different composition of the lowest deposits in the Long Mound ditches--a mixture of chalk, clay and silt, containing Early Neolithic artefacts. The nature of this deposit almost certainly negates the value of radiocarbon date BM 2456, 2770 ± 100 b.c., from the lower layer of the Long Mound fill.

Examination of the existing sections, particularly pp. 8, pp. 11, and pp. 13 of area Q, would suggest that cleaning/recutting activities occurred in the Long Mound ditch, while pp. 15 & 30, and pp. 17 & 29 of area R would suggest that some activity of this sort continued in the causewayed enclosure ditch not covered

by the Long Mound. None of these recuts can be satisfactorily tied together at this stage, however, so broad phases cannot be suggested, although this activity must have spanned the use-period of "Neo. A" and "Neo. B" as these types occur together. It would seem likely also, that at least one cleaning/recutting took place during the Late Neolithic/Early Bronze Age, mixing the Earlier Neolithic types with beaker material. Although such a recut cannot be seen in the sections illustrated, the preponderance of Early Neolithic material in the uppermost layers, mixed with beaker, Food Vessel and Collared Urn sherds, suggests that some upheaval in the ditch stratigraphy must have taken place at this time. The occurrence of several sherds in the top of the "secondary silts" of the causewayed camp and Long Mound ditches may mark the phase, it is interesting that they may possibly be "early" types. The majority of the beaker lies above this, stratified with Food Vessel and Collared Urn, in the "terminal deposit", which Sharples dated to 1520 ± 70 b.c. To modify Wheeler's account then:

1. Earlier Neolithic, pre-3000 b.c. ?double-ditched causewayed enclosure dug on eastern knoll, Maiden Castle.
2. Earlier Neolithic, c. 3000 b.c., series of cleanings/recuttings of the ditches, associated with Early Neolithic pottery and other artefacts.
3. sometime after (2) the Long Mound ditches are dug, cutting into the causewayed enclosure ditches, and redepositing material.
4. Later Neolithic, probably following on from a series of earlier recuts, a further recutting of the causewayed enclosure and Long Mound ditches takes place which deposits beaker material with "Neo. A" and B. The beaker may be "early" type.
5. Early Bronze Age, c. 1500 b.c. beaker material, along with Collared Urns and Food Vessels, as well as Earlier Neolithic material forms the terminal deposit. The beaker is primarily steps 4-6. There

may be a distinction between slightly earlier and "less complex" material at sites L, Q, and R, and slightly later and "more complex" material at sites F and G.

6. the Bronze Age turfline forms.

Knap Hill, Alton Priors, Wilts.

...it was found that the ditch, instead of being continuous, is cut into short and irregular sections divided by portions of unexcavated ground, forming apparently gangways or causeways leading into the camp...these causeways are in every case opposite a gap in the rampart, clearly showing that these gaps are not the result of any accidental circumstance... [Cunnington, 1911: 46].

The Knap Hill causewayed enclosure is represented by a single causewayed ditch enclosing the western side of the hill, and consisting of six segments [see Connah, 1965: 2, fig. 1]. This site, which is located five miles south-south-east of Windmill Hill, was first excavated by the Cunningtons in 1908-9, and later by G. Connah, in 1961.

Connah proposed the following sequence of activity on the site:

1. causewayed camp, c. 2750 b.c. "...abandoned at an early stage--perhaps so early that it was never completed..." [Connah, op. cit., pp. 22].
2. beaker activity, from "stratigraphically superficial locations, representing transient visits" to the hilltop, c. 1850 b.c.
3. "plateau enclosure" representing settlement/occupation during the Romano-British period.

Beaker sherds were recovered from layers 1, 2, and 4, in cuttings I-IV of Connah's excavations, and from the surface of the ditch in the 1908-9 sections.

It was the 1908-9 excavations by the Cunningtons which formed the basis for the original description of the "causewayed camp" site type.

The 1961 excavations were "...designed to re-examine this site in the context of modern archaeological research..." [Connah, op. cit., pp. 1]. Three sections were cut through the ditch and bank [op. cit., pp. 2, fig. 1, sections I, II, III], and one through a causeway [ibid., section IV].

The layer numbers "...do not, however, appear on the section drawings, as they are simplifications which it is difficult to relate to the drawings..." [Connah, op. cit., pp. 3]. Connah considered that a significant amount of weathering of both the bank and ditch had occurred, and as a result only the lower silt of the ditch, layers 5 and 6, and the bank and buried soil, layers 7 and 8, could be considered to be securely stratified Neolithic layers. Pottery of "Windmill Hill" type (Early Neolithic) was recovered from layer 6 of cutting III of the ditch, and layer 7 of cuttings I and II of the bank. Two sherds were also recovered from the buried soil under the bank, layer 8, in cuttings II and IV (although these are not indicated in the section drawings, see figs. 3 and 5). These latter sherds are presumably indicative of pre-enclosure activity.

Layers 1, 2, and 3, Connah felt, should be regarded as topsoil, while layer 4 represented an "erosion product" emanating from outside the ditch, largely from the bank. Cuttings III and IV, the section nearest to the "plateau enclosure" and the causeway, were both disturbed by Romano-British and Medieval activity, into layer 4 of the ditch, including an inhumation burial in layer 4, cutting III, probably of Romano-British date.

Cuttings I and II were "less disturbed" and also less productive, containing mainly Neolithic material. All cuttings produced a mixture of material from layer 2 of the bank. Radiocarbon dates were assayed on antler from layer 6, cutting I, and bulked charcoal, cutting II, layer 4; BM 205, 2760 ± 115 b.c., BM 204, 1840 ± 130 b.c.⁷⁶

Two factors may suggest that the stratigraphy of the ditch was disturbed, possibly through cleaning/re-cutting/refilling activities. The first is the loose chalk rubble in the bottom of the ditch (layer 6) which is fairly sterile. The second is the deposition of the pottery, with the bulk of the Neolithic sherds, and the sherd assemblage as a whole, in the upper silts. With the exception of the "knapping floor," this is also true of the other artefactual material. If some sort of cleaning/recutting activity had taken place, the date for the antler from layer 6, 2760 ± 130 b.c. would possibly represent this recutting phase, rather than the construction of the ditch. In the light of the above comments, the date for cutting II, 1840 ± 130 b.c., should be viewed as "general," as it is likely that the charcoal is of "mixed horizons."

The greatest proportion of beaker material was recovered from cutting II, layer 4, with other sherds coming from cutting II, layers 1 and 2, cutting III, layer 2, and cutting IV, layers 1 and 2. At most these sherds represent some seven to eight vessels, and it is likely that they do not account for more than three or four. The identifiable sherds represent beakers of steps 5-7, "middle" and "late" types; compare fig. 6.8 [Connah, *op. cit.*, pp. 13] with Clarke 839 (S2) Bishop's Cannings, Wilts., fig. 6.10 [*ibid.*] with Clarke 978 (S₄) Brigmerston, Wilts. That the material

⁷⁶Antiquity 43(1969): 304-5.

from layer 4 is disturbed is indicated by the fact that the adjoining sherds found in layer 1. The beaker recovered during the 1908-9 excavations was of the same type as above.

The location and quantity of beaker pottery on the site gave rise to Connah's interpretation of "transient visits" by "Beaker People". The amount of pottery present could be accounted for by one "ritual deposit"⁷⁷ of three to four vessels in the top of the ditch and/or bank of the enclosure. There are three round barrows in or adjoining the enclosure earthworks [Grinsell, 1957: 149, barrows 8, 9, 10] which might belong to the same period, although none produced datable finds. This is in strong contrast to the situation at the neighbouring site of Windmill Hill. Here "middle" to "late" beaker form a major element in the ritual activity of the site, concentrated on the outer ditches, at a terminus ante quem of 1540 \pm 150 b.c. The scarcity of finds of Late Neolithic/Bronze Age date at Knap Hill may suggest some inter site preference or differentiation operating at this period (as already suggested, for instance, at Durrington Walls and Woodhenge), as opposed to the Earlier Neolithic, when the two sites were apparently functionally contemporary.

On the basis of the above comments, these additions can be offered to Connah's interpretation of activity on the site:

1. pre-enclosure activity, represented by Early Neolithic sherds from the buried soil beneath the bank, layer 8.
2. construction of the causewayed ditch and bank, with terminus ante quem c. 2750 b.c.

⁷⁷i.e. a deliberate "burial" of material in the ditch. see chp. 8, pp. 366.

3. cleaning/recutting and refilling of ditch, c. 2750. some "ritual deposition" (knapping floor) of flint-working material?
4. ?deliberate deposit of "middle" type beakers in the upper ditch silts, c. 1850 b.c.

Abingdon, Oxfordshire

The causewayed enclosure at Abingdon stands on a slight spur, bounded on the south by two streams. It is double-ditched, with the inner ditch being causewayed and the outer ditch possibly causewayed. The inner ditch was excavated by E.T. Leeds in 1926-27, and again by M. Avery *et.al.* in 1963. The outer ditch was excavated by H.J. Case in 1954 [see Avery, 1982: 11, fig. 3 for plan of the excavated areas].

The report by Avery *et.al.* is the most complete, and provides a summary of activity on the site:

1. period 1; digging of the inner ditch, and construction of an inner bank, with possible timber "stockade" facing. The bank silted into the ditch until it was almost filled.
2. period 2; recutting and refilling of the inner ditch, and digging of the outer ditch. The inner ditch was refilled immediately with alternating layers of sterile gravel and occupational rubbish.
3. period 3; postholes, gullies and a pit found outside the inner bank suggest habitation took place while the inner bank still stood.

Beaker pottery was recovered from the upper fill of the outer ditch, and from pit D, in the inner area of the enclosure [*ibid.*, fig. 3].

The enclosure was already extensively disturbed before excavation began. Much of the inner ditch and some of the outer ditch were dug away in gravel

quarring prior to 1926, and the remainder of the outer ditch was covered by houses and gardens between the 1926-7 excavations and 1954. The cutting of the outer ditch appears to have the most "straight-forward" stratigraphy. Made through a section in the garden of no. 15 [Case, 1956a: 12, fig. 1], it revealed a ditch about 2.5m deep and 7m wide, apparently "undisturbed" (i.e. un-recut) consisting of:

1. topsoil and subsoil loam, layers 1-2.
2. tertiary silting, layer 2a, sandy loam with sherds of Early Neolithic, beaker, Romano-British and Medieval pottery.
3. secondary silting, layers 3-3a, yellow-brown sand and gravel.
4. primary silting, layers 4-7, alternating layers of sand/gravel or loamy material.

Case noted that "...the bands of loamy sand below 3a represented topsoil material..." [op. cit., pp. 14], presumably derived from the bank. This banding appears superficially similar to that in the re-cut layers of the inner ditch, as described by Avery [Avery, 1982: 17], however the blackish (organic) layers of the inner ditch are missing.

The distribution of pottery in the outer ditch would also support an "undisturbed" stratigraphy. The bulk of the pottery (which is measured by weight) comes from layers 5 and 6, in the lower levels of the ditch, and gradually decreases in amount through the upper layers. All the sherds recovered are of Neolithic type ("Abingdon ware" with a small component of Peterborough Ware), with the exception of the uppermost silting, where the material is mixed.

This "normal distribution" is consistent with a ditch fill pattern which has not been altered by cleaning or recutting. It is distinct from the

"inverse distribution", familiar in most causewayed ditches, where the bulk of the pottery comes from the upper levels of the ditch, in the secondary, and particularly the tertiary silting. Almost always a mixture of types and periods is represented. In this case the lower layers are often culturally sterile, or nearly sterile. This "inverse" pattern is recognizable in the inner ditch, where the majority of pottery recovered from the 1963-4 excavations came from the upper secondary silts, layers 2-5, above the recut. The pottery from the lower silts represented only 4% of the total recovered [see Avery, 1982: 25, table 1].

The two beaker sherds recovered from layer 2a are illustrated in Case [fig. 4, nos. 30-31, pp. 17]. The pottery report describes them as "...1 body sherd of Beaker ware, probably from a vessel of type B with incised zonal decoration (no. 30); 1 base-sherd of possibly the same vessel (no. 31)..." [Case, op. cit., pp. 16]. Little more can be said about them. There is not enough of either sherd to assign either a type or a step with any certainty, and their condition and context suggests that they arrived in the ditch fill through natural silting, rather than as part of a deliberate deposit.

The inner ditch differs markedly in size and stratigraphy from the outer ditch. It averages 1.5m deep by 3m wide (roughly half the size of the outer ditch) and produced clear evidence of recutting, both in stratigraphic section, and in the pottery distribution. Leeds' excavations took in the eastern portion of the inner ditch [see Leeds, 1928: 463, fig. 1], and included the "internal features" A-E. Case felt that "hut-pit" A might represent a third ditch (largely destroyed by the gravel works) on the basis of similarities in stratification between it and Leeds' inner ditch sections [Case op. cit., 11, note 3].

Leeds designated feature D as a "pit dwelling"; an roughly oval pit 10' x 6'6". "...the dwelling was entered at the west end by a sloping passage of which five feet were preserved...." [Leeds 1928: 466; ?could this represent a ditch terminal of another (unrecognized) ditch circuit]. From this "dwelling" were recovered c. 35 sherds of Early Neolithic ware, 2-3 sherds of beaker, a piece of antler, 1 leaf arrowhead and numerous flint flakes [Case op. cit., 23, note 2-3]. The beaker sherds are illustrated in Case fig. 4, nos. 32, 34, and consist of a rim sherd of rusticated ware, of Clarke's type III or VIII [Clarke, 1970, II: 423], and a base sherd with groove decoration. There is not enough of either sherd to assign them to a type with any certainty, however shapes III and VIII are characteristic of the "East Anglian" beakers, which are generally steps 2-3, "early" beaker types. Leeds did not record the stratigraphic position of his finds, so it is impossible to know the relationship between the Early Neolithic pottery and the beaker sherds.

The interpretation of "pit-dwelling" D is problematical; it is too deep to be another of Avery's gullies, as in area B [Avery 1982: 18-19], and seems rather large for a posthole. Its general dimensions seem more in keeping with Avery's pit 1, area A [op. cit., pp. 12], which Avery suggested was Neolithic (lacking any other evidence). The similarity of finds between pit D and the inner ditch would suggest contemporaneity, but its function is unknown, although it has certain similarities to the ritual deposits in pits inside the main enclosure at Hambledon Hill [see Mercer, 1980].

Leeds' sections of the inner ditch are illustrated in fig. 4a-c of the first report [Leeds 1927: 444], and fig. 2a-c of the second report [Leeds 1928: 465; note that sections H.2 - H.4 become S.1 and S.2 in the

second report]. Although very different in style and technique to those of Avery *et.al.*, a generally similar stratigraphic sequence can be seen in both the 1926-7 and 1963-4 sections.

The best evidence for Avery's periods 1 and 2 came from area C, adjoining Leeds' excavations [Avery 1982: 13, fig. 4]. Here the three sections were cut through the ditch, CI-CIII, after the upper levels had been stripped by machine. Layers 44-56 represented period 1, and consisted largely of gravels, which were the result of natural silting [*op. cit.*, figs. 6-7]. Layers 3-43 represented period 2, and consisted of alternating sterile (gravel) and loamy organic deposits. The organic deposits contained quantities of charcoal, bone and Early Neolithic (only) pottery. "...the layers observed had a distinctive cross-section and could be seen as individual heaps...each appeared to have been deliberately deposited by upturning a large basket...." [*op. cit.*, pp 17.] This dumped material, it was suggested, came from several sources. "...clean gravel may have come from digging the outer ditch. Loamy gravel may have been obtained from the inner bank or the upcast provided by recutting the ditch...." [*ibid.*] Organic material may also have been derived from habitation, where the ditch provided a convenient location for refuse removal [*op. cit.*, pp. 24]. "...organic layers...mainly of unburnt refuse matter...seems more in keeping with a habitation site continuously occupied...." [*op. cit.*, pp. 17].

A number of radiocarbon dates were produced on samples of bone and charcoal from the period 2 levels, however, their usefulness seems somewhat limited, considering they are drawn from layers consisting largely of period 1 material mixed with "domestic rubbish" of unknown origin. One date, on an antler comb from layer 3d, is likely to at least be in some

way related to the activity in the ditch, while two others, on animal bone, at least provide a terminus post quem for their deposition: layer 3d, 2510 ± 140 b.c. (BM 355, antler comb), layer 4c, 2500 ± 145 b.c. (BM 354, animal bone), layer 13, 2760 ± 135 b.c. (BM 352, animal bone). These three dates overlap within one standard deviation, and from their position in the ditch, would appear possibly to represent a recut subsequent to that of Avery's period 2 [see fig. 7 particularly]. The remaining dates are for layers 5d, 13, and 18a-c and 19, derived from charcoal deposits, and again, overlapping within one standard deviation: layer 5d, 3020 ± 130 b.c. (BM 353), layer 13, 3110 ± 130 b.c. (BM 351), layers 18a-c, 19, 2960 ± 110 b.c. (BM 350).

Area B was searched for a continuation of the inner ditch, which appeared to be represented in pit B3, and possibly continued in pit B1, B2 or both [op. cit., pp. 18, fig. 10]. Here two sections, BI and BII, showed continuity with the pattern in area C, with a layer of sterile gravel in the bottom of the ditch recut and refilled by alternating layers of sterile and organic deposits. In the sections [figs. 11-12], BI layer 6 and BII layers 18-33 represent period 1, the "primary silting." BI layers 3-5 and BII layers 4-17 represent the period 2 recut, while the gully B3 marks the beginning of the tertiary silts. Two radiocarbon dates were obtained on charcoal from the recut layers: layer 17, 2780 ± 135 b.c. (BM 348), layer 6c, 4070 ± 110 b.c. (BM 349).

There are a number of difficulties with Avery's interpretation of the nature of the inner ditch, not least of which is the number and sequence of the recuts. It must be borne in mind that finding a gravel-filled ditch in a gravel matrix cannot have been an easy task, and the excavators are to be commended

for their efforts. It would seem likely, however, that an "initial" cleaning or recutting of the ditch, represented by "period 1", was missed. This is indicated by several factors; the composition of the lower layers, which are largely loose gravel, and their sterile nature, which would suggest that they are not "natural silting" but deliberately deposited (possibly the result of the bank being pushed in, see Windmill Hill for a similar phenomenon). This is perhaps most clearly seen in Leeds section of N.3 [Leeds 1928: 465, fig. 2c], where the ditch was nearly filled at one point with loose gravel.

...for some reason after the first slide of earth there was an even greater slip of loose sandy gravel from both sides and from the end. The layer thus formed was absolutely sterile... [ibid.].

Below this layer is a deposit of "earth with pottery," approximately 5 ft. below the top of the ditch. A similar section (CI) measures less than 4 ft. in depth, and it is possible that the ditch bottom was not reached at this point. The "inverse" pottery stratigraphy, as discussed above, would support this cleaning/recutting interpretation, as would Leeds' observation concerning the distribution of sherds in the ditch;

...although groups of sherds belonging together have from time to time been found within a fairly limited area, others equally clearly from one and the same vessel lay scattered up and down the trench... [Leeds, 1928: 471].

The domestic nature of the inner ditch may also be questioned. Bradley has suggested in his reinterpretation of the Abingdon enclosure that "...the

material in the inner ditch...may have been accumulated and deposited with more formality than Avery supposed..." [Bradley, 19 : 186]. The distinct "heaps" of material, including one case of articulated animal bone, and the size of a number of the pot sherds, Bradley argues, would militate against their being the remains of domestic rubbish. Further, the proportions of different body parts represented appear to be very similar to those from Hambledon Hill, which have been taken to represent "feasting" activities [Bradley, op. cit., 185]. In addition to these arguments, there is no evidence in either Leeds' or Avery's reports for any structures in the interior of the enclosure, of any kind, to provide a habitation and produce domestic rubbish.

At the present time it is not possible to correlate the activities of the inner ditch with that of the outer ditch. The only argument for the inner ditch pre-dating the outer appears to be Avery's hypothesis that the outer ditch served to provide material with which to fill the inner one.

...it is natural to infer then that the outer ditch was dug in period 2, to provide a new enclosure, like the old one but enclosing a larger area with a deeper ditch. This would account for the clean gravel deposits in the inner ditch... [Avery 1982: 24]

This argument could equally well apply to the gravel deposits of period 1, however. The differences between the two ditches are difficult to account for, other than by the suggestion that they served different functions. This point is forcefully made by Bradley in his reinterpretation of the Abingdon enclosure. The outer ditch is both wider and deeper than the inner one, and lacks evidence for cleaning or recutting activity, in fact lacks clear evidence for causeways.

There are distinctions in the artefact distribution as well, for instance the concentration of axe fragments in the inner ditch. Drawing on parallels from Crickley Hill and Hambledon Hill, Bradley has suggested that the outer ditch may have had a defensive role [Bradley, 1986: 187]. Lacking radiocarbon dates for the outer ditch, and considering the identical nature of the Neolithic pottery from the two ditches, it is not possible to say which pre-dates the other.

The following amendments may be made to Avery's interpretation of the sequence of activity on the site:

1. period 0; the inner ditch is dug and the bank piled up. Some Early Neolithic pottery, and bone may be deposited in the primary silt [see Leeds section N.3, fig. 2c]. The outer ditch and bank may also be constructed at this time.
2. period 1; the inner ditch is cleaned/recut, and refilled with largely sterile gravel.
3. period 2; the inner ditch is recut again [Avery period 2] and refilled with alternating layers of sterile gravel and "occupation debris." There may have been several phases to this, one of which may be represented by layer 13 (cuttings CI, CII) and above. The end of this period is marked by radiocarbon date BM 355, c. 2500 b.c. the outer ditch may also be (re)filled at this time.
4. period 3; "early" beaker sherds accumulate in the upper fill of the outer ditch, and pit D (?another possible ditch circuit).

Offham Hill, East Sussex

Offham Hill is a D-shaped, double ditched causewayed enclosure. Already extensively plough-damaged, it was excavated by P. Drewett in summer 1976, in advance of final destruction by ploughing.

The enclosure was "incomplete," with at least a portion of it removed by chalk quarrying during the

19th century. It seemed likely to Drewett, however, that the enclosure had never been circular, on analogy with Combe Hill, "...the enclosure was never continuous but was originally d-shaped with an open side facing the scarp slope..." [Drewett, 1977: 203, and fig. 2]. The banks survived only as gentle undulations and were planned largely as soil and vegetation markings. The site was also marked by tree-holes from trees removed in post-war clearance.

The ploughsoil was removed by machine, during which one polished flint axe was recovered from the interior [see fig. 10.13, pp. 216]. The ditches, which were found to be quite shallow, with an estimated maximum original depth of 1.50 m [op. cit., pp. 205], were considerably disturbed by tree-roots, burrowing animals and ploughing [ibid.]. However, "...all the undisturbed sections were surprisingly uniform regardless of depth..." [ibid.]. The stratigraphic sequence was as follows [see figs. 4, 6-8]:

1. modern ploughsoil
2. fine, brown friable soil.
3. small, rounded chalk lumps in light brown soil, with some angular flints.
4. angular lumps of chalk in powdery chalk soil.

Forty-eight sherds of beaker, representing one pot, were recovered from the inner ditch, segment 3, layer 2.

Drewett noted that "...the majority of material found in the ditches was abraded and could have been on the surface for some time before gradually accumulating in the ditch silts..." [op. cit., pp. 208-9]. The sections do not seem to indicate any obvious dumping of material, and Drewett concluded that "...both the inner and outer ditches appear to have silted up

naturally..." [op. cit., pp. 205]. Molluscan analysis [op. cit., appendix IV and pp. 211] indicated that "...the inner ditch was probably dug first...at a slightly later stage the outer bank and ditch was added...the timespan between the two phases of construction is clearly somewhat uncertain...." [ibid.]. Charcoal samples were drawn from layers 3 and 4 of the inner ditch, segment II, (incorrectly reported as from layer 2, segment IV and layer 4 segment II in Radiocarbon), which produced radiocarbon dates of 2975 ± 80 b.c. (BM 1414, layer 3, seg. II) and 2790 ± 60 b.c. (BM 1415, layer 4, seg. II). These two dates overlap within two standard deviations.

Drewett located eight concentrations of flint flakes in the "basal layer" of the inner and outer ditches [see fig. 4, marked FC], although he did not consider these to be indicative of "deliberate deposits". He did recognize two other "deliberate deposits;" a crouched inhumation in outer ditch, segment 4, and a "burial" of a leaf arrowhead, flint flakes, Early Neolithic pot and animal bones, in pit 1, outer ditch, segment 2. Both these were on or in the base of the ditch. It is interesting that Drewett did not consider the flint concentrations to be deliberate; six of the eight deposits are in the third segment of the ditch, three in segment 3, outer ditch, three in segment three, inner ditch. The material would also appear to be somewhat "specialized;" the flint report, noted first "...the most striking fact is the very small proportion of implements to waste flakes..." [op. cit., pp. 214], and later "...large proportion of the waste flakes were cortical ones, which indicates many cores were missing..." [op. cit., pp. 217]. The report suggests that the nature of the waste material could indicate preparation of cores, in the ditch, with the cores removed for further working elsewhere.

Unfortunately the size/volume of the concentrations is not quantified, so it is difficult to know what proportion of the total assemblage they represented. However, 66% of the total flint assemblage was recovered from the "primary ditch fill."

Although never explicitly stated, it would appear that the "primary ditch fill" is represented by layers 3 and 4 [this is most strongly suggested by the environmental report, which discusses layers 3 and 4 in relation to the construction of the enclosure, see pp. 237-9], while the "secondary ditch fill" is represented by layer 2. This would correspond to the description on pp. 212 "...mixed pottery was also found in the latter levels...." There would appear to be no distinction to be made between the type of flint material recovered between the inner and outer ditches, and this would appear to be true also for the Early Neolithic pottery recovered, which would suggest that if the sequence of inner then outer ditch is correct, the timespan is relatively short.

There is a distinction between the quantities recovered from each ditch, however. "...more material was found in the outer ditch than in the inner ditch, although it must be remembered that a greater length of the outer was excavated..." [op. cit., pp. 208]. Of the Early Neolithic sherds, 88% came from the outer ditch, and of these, 85% were from segment 2. This mirrors the assemblage as a whole, where 72% came from the outer ditch, and 89% of that from segment 2. Interestingly, the only major concentration of pottery in the inner ditch is the 48 sherds for beaker.

If one looks at the distribution of sherds through the various layers, a different picture emerges. 72% of Early Neolithic sherds, and 83% of the total pottery assemblage are derived from layer 2, the "secondary fill." Of the "primary fill," 25% of Early Neolithic

and 15% of total are from layer 3, 3% of Neolithic and 2% of total are from layer 4. This represents an inverse pottery stratigraphy which, as discussed above, may be an indicator of ditch cleaning/recutting/refilling activities. Further, the presence of pre-Roman Iron Age and Romano-British sherds in layers 3 and 4 of segment 2 (outer ditch), would indicate that the ditch stratigraphy was somewhat disturbed. This may be a result of the extensive damage to the site (in light of the very shallow nature of the ditches); however, the inverse pottery stratigraphy, with the chalk rubble nature of the basal fill, may also indicate that this is "secondary re-filling," following some cleaning or recutting activity. The abraded nature of the Neolithic pottery [op. cit., pp. 218] may also support this hypothesis.

The beaker sherds represent one vessel of all-over-comb type, Clarke's "European Bell" beaker, Lanting and van der Waals step 2 [fig. 11.21-22, pp. 220]. The sherds were recovered in a compact mass [P. Drewett, pers. comm.], and would appear to a single "ritual" deposit in the "secondary fill" of the inner ditch. Both rim and base sherds survive, and it is not possible to tell from the recovered sherds which way up the vessel was deposited. Although not reconstructed, the vessel would appear to be similar to Barton Hill, Suffolk (Clarke E 844), or Itford, Hants. (Clarke E 330).

The section drawings [figs. 6-8] would suggest that by the time the secondary fill was deposited, the ditches were better than half-full; perhaps c. 50-70 cm deep. The original height of the banks is unknown, but the shallow nature of the ditches would suggest that they were fairly low. It is interesting then that the beaker was deposited in a section of ditch between two

"entrance" causeways⁷⁸, this being perhaps the most easily marked area in monument.

On the basis of the above analysis, the following suggestions can be made concerning the sequence of activity on the site:

1. phase 1: ditches dug and banks piled up. the lack of distinction in type of Early Neolithic material, and the contaminated nature of the "primary ditch fill" from which the molluscan samples were taken, does not support the suggestion [pp. 239] that the inner ditch and bank were constructed, and layer 4 accumulated, before the outer ditch and bank.
2. phase 2: ditches are cleaned or recut; "ritual" deposits are placed in pit 1, and crouched burial on ditch floor in segment 4. flint concentrations are made or placed on ditch floor, segments 2 and 3. ditches are partially refilled? [c. 2790 b.c., BM 1415].
3. phase 3: "ritual" deposit of a single "early" type beaker is made in the inner ditch, secondary silts. may be contemporary with activities in adjacent barrow cemetery? [pp. 204].
4. phase 4: "ritual" deposit of Iron Age pot is made in the outer ditch, secondary silts.

Orsett, Essex

The causewayed enclosure at Orsett has three ditches, and a palisade slot, set immediately within, and closely conforming to the outer two ditches [Hedges, 1978: 222, fig. 3]. The southern portion of the causewayed enclosure is obscured by a number of

⁷⁸...The causeways characteristic of causewayed enclosures may be divided into two main types: those that are probably only constructional features and those that are true entrances... at Offham Hill the distinction appears clear with the entrance causeways being wider and with matching causeways on both inner and outer ditches, together with breaks in the banks. The constructional causeways are narrower with no corresponding gap in the bank... [Drewett, 1977: 211].

Iron Age, Romano-British and later features. The site, which had been regularly ploughed, was excavated in the summer of 1975 by J. Hedges and D. Buckley.

Five trenches were dug [see fig. 5, pp. 225] to examine the two outer ditch circuits and palisade trench (areas A and B), the inner ditch circuit, and overlying features (areas C and D). Areas A and D were excavated by hand, while B and C were mechanically stripped to the base of layer 2 (the overlying ploughsoil). The following sequence of activity was postulated for the site [see also fig. 23, pp. 251]:

1. construction of inner, middle and outer ditches, palisade and ancillary features, c. 2700 b.c.
2. some recutting of the inner ditch, and refilling by dumping of material, c. 1920.
3. Iron age settlement, indicated by numerous pits, and enclosure ditch, F5 [fig. 7, pp. 227], c. 550 b.c.
4. Anglo-Saxon period cemetery, ring ditches F6 and F8.

There were no features which could be satisfactorily related to the pre-enclosure phase, however a number of features were undated. Beaker pottery was recovered from layer 3 of feature 121, area C; a large pit in the centre of a postulated Neolithic structure.

The outer ditches, F1 and F2 [see fig. 6, pp. 226] averaged 4m wide by 1.5m deep.

...close correspondence between the two outer circuits, both in general layout and in their minor irregularities...implies the two outer circuits were laid out together, but that no such conformity existed with the inner ditch circuit... [op. cit., pp. 222]

This conformity extended to the palisade slot, which closely paralleled the middle ditch, although having

fewer causeways. The ditches were dug into sandy gravels, making their detection difficult.

...on completion of the ditch excavation selective box sections were dug...firstly to confirm that the true ditch sides and floors had been reached...[op. cit., pp. 234].

In the outer ditch (F1), layers 7-9 represented the "primary" fill, layer 6 the bank, which Hedges and Buckley postulated had slumped into the ditch from the inner side, and layers 3-5 the secondary or upper silts [layers 1-2 removed; see pp. 231 for geological descriptions]. The location of layer 6, as a wedge-shaped fill part-way up the inner side of the ditch, confirmed for Hedges and Buckley the position of the bank. In the middle ditch (F2), layer 6 represented the "primary" silts, while layers 3-5 represented the secondary silts. "...the collapsed bank material observed in the outer ditch sections was absent from the middle ditch..." [op. cit., pp. 236]. Hedges and Buckley concluded therefore, "...that the excavated material from both ditches was used to construct a single continuous bank between them..." [ibid., see fig. 21a, pp. 246 for a reconstruction]. Further, they considered that the evidence from section C of the outer ditch [fig. 8, pp. 229], indicated that the bank was turf revetted, to retard it from slumping into the ditch.

The difficulty with the sequence as proposed is the location and nature of layer 6. From both geological descriptions, and the artefact content, layer 6 in the outer ditch would appear to be identical to layer 6 in the middle ditch. Hedges and Buckley attempt to grapple with this inconsistency; "...if it is assumed that both ditches are contemporary, then inexplicably the inner bank revetment must have remained intact..."

[*ibid.*], but offer no satisfactory explanation⁷⁹. A sample of charcoal from layer 6 of the middle ditch produced a radiocarbon date of 2583 \pm 112 b.c. (BM 1214).

The palisade slot, as excavated, was 0.80m wide by 0.75m deep (below the present plough surface) and was largely filled by a loam/sand mixture, with occasional charcoal lenses and post-pipes of very dark, stone-free loam, which may indicate that "...some timber posts may have burnt or rotted *in situ*..." [op. cit, pp. 238]. One post-pipe, F84 [see fig. 14, pp. 238], produced charcoal radiocarbon dated to 2776 \pm 74 b.c. (BM 1378). Hedges and Buckley noted that "...only the deeper sockets were observed..." [*ibid.*], and it seems likely on examining the section drawings [fig. 15, pp. 239] that the post-pipes were truncated either by ploughing or subsequent topsoiling during excavation.

A number of other features, consisting mainly of shallow pits and postholes, were recovered in and around the outer and middle ditches, and the palisade. One of these, F10, a shallow trench, produced a number of flints and a sherd of Early Neolithic pottery from a uniform sandy loam, but no indications of post-pipes or postholes. Hedges and Buckley felt, however, that "...it is difficult to envisage F10 as representing anything other than a further timber fence or palisade..." [op. cit., pp 242.] A large pit, F14, centrally located between the terminals of the north causeway in the palisade, was interpreted as part of a blocking or gate. Charcoal from layer 3 of this feature produced a radiocarbon date of 2791 \pm 113 b.c. (BM 1213). Another shallow pit produced a charcoal radiocarbon date of 2670 \pm 43 b.c. (BM 1377).

⁷⁹alternatively, one must assume that the bank was only revetted on the middle ditch side.

The inner ditch (F4) showed a different and somewhat more complex sequence of filling. "...the ditch fill was less consistent than that of the outer ditches and in some cases disturbed by possible recutting of the ditch..." [op. cit., pp. 236]. The general sequence was layers 8-11, "primary" fill, layers 5-7, secondary fill, and layer 3, tertiary (of Iron Age period, see fig. 7, pp. 227, and figs. 12 and 13]. The lower fills "...were variable and intermittent deposits of charcoal rich loams, pottery, flint and stone were present..." [op. cit., pp. 237]. Charcoal from section IV, layer 10, produced a radiocarbon date of 2635 ± 82 b.c. In the upper fills (layers 5-7) the deposits became more discrete;

...an impression of successive placings or dumping of small amount of material quickly covered with sand and gravel and later sometimes recut is portrayed by the ditch sections... [ibid.]

Charcoal from layer 5, section IV, provided a radiocarbon date of 1921 ± 62 b.c. (BM 1380).

There are several differences between the inner and middle/outer ditches, aside from general layout. The inner ditch is slightly deeper, c. 2m as opposed to c. 1.5m, and contains the bulk of Neolithic finds from the site; more than half the flint, and 85% of the Early Neolithic pottery. In addition, much of the pottery would appear to come from two or three "rich" deposits, in layers 9-11 of ditch sections II and IV. Particularly interesting are the deposits in section II, layer 9 and section IV, layer 4, which consist of large sherds and portions of vessels of both decorated and undecorated type [see figs. 31-35]. The majority of Grooved Ware on the site also came from the inner ditch, section I, layer 4, although one sherd of the same vessel was found in layer 8.

From the interior of section C (inside the inner ditch), Hedges and Buckley recovered a collection of postholes of possible Neolithic date, which they interpreted as an oval plan structure [see fig. 21, pp. 246]. Positioned centrally to this structure was a large pit, F121, which produced c. 80 sherds of Neolithic to Bronze Age pottery, along with 79 flints. These finds came from layer 3, which Hedges and Buckley felt represented a recutting of a Middle Neolithic feature by one or more postholes of Late Neolithic date, "whose fills could not be differentiated from that of the surrounding layer". In addition to 68 sherds of Early Neolithic pottery, Grooved Ware [fig. 35.82, pp. 275], beaker and Collared Urn [fig. 35.89, pp. 275] sherds were also recovered. Of the postholes associated with the "structure", F134, 162, 199 and 210 produced pottery of Neolithic date.

The beaker pottery represented 5-6 possible vessels, illustrated in fig. 35 (nos. 83, 85, 87, 92, 93, 94, 99, 100). The sherd in fig. 36.111 is unlikely to be beaker; it is probably Romano-British (as suggested by the authors). Sherds 92-94 and 99-100 represent two rusticated ware vessels, with paired fingernail decoration. Sherds 85 and 87 may belong to the East Anglian tradition of beaker stamp impressed wares; see Shoebury I, Essex (Clarke EA 259), Kew, Surrey (FN 972), Runciton Holme (EA 586), and Shoreham, Sussex (FN 1006) for parallels [Sherd 85 has been wrongly reconstructed see §fig. 56, pp. 580 (SF 84) for a correction]. Such decoration also occurs on Peterborough-Fengate Ware, however, the fabric here is of beaker type.

Sherd 83 (SF 71) is of W/MR or N/MR type, steps 2-3, "early" beaker [Again the reconstruction is wrong, see op. cit. SF 71 for a correction, note also that the decoration is comb rather than cord, as stated in the

published description]. Parallels for this vessel would be Heacham, Norfolk (Clarke W/MR 547) and Ipswich, Suffolk (Clarke N/MR 908). Taken together, the beaker sherds would suggest an "early" assemblage, which would be in keeping with the sherd of Grooved Ware from the same deposit. This deposit in layer 3 of pit F121 may be contemporary with the deposit in layer 4 of the inner ditch, which also produced Grooved Ware. However, it should be noted that F121 layer 3 also produced a sherd identified as Collared Urn (although it is possible that this is Grooved Ware).

Considering the evidence presented by Hedges and Buckley, alternative possibilities for the sequence of activity on the site can be suggested. The radiocarbon dates for the palisade and central post, F14 only just overlap those for the inner and middle ditch within one standard deviation, which might suggest that they were not contemporaneous developments. One suggestion is that either the inner and middle (and presumably outer ditches) were a later phase than the palisade, however, this seems implausible on the basis of similarities in plan and artefactual remains. Another suggestion could be that the palisade, middle and outer ditches represent one phase of construction (c. 2780 b.c.), and that the middle ditch was subsequently cleaned and refilled (c. 2600 b.c.), partially with bank material (layer 6), and contemporary with the construction-"primary" silting phase of the inner ditch. Some support for this second suggestion can be gleaned from the pottery distribution in the middle ditch, where the Neolithic sherds appear to be common throughout layers 3-6. Further sherds of Neolithic pottery were recovered from layers 1-2 during stripping, and it would seem fairly likely, given the predominant distribution of finds in the ditches in area B, that a number of these came from the tops of the ditches. At

present there is no firm evidence for recutting in the outer ditch.

The inner ditch would seem to have had greater significance, at least in terms of artefact deposition. The majority of "fine" Early Neolithic vessels from the site were recovered from layers 9-11 of the primary silting. Subsequent to this, the inner ditch was recut and refilled (probably more than once), to at least the depth of layer 8, which would account for the separation of the Grooved Ware sherds. It is possible that the latest of the recut(s) took place contemporary with the recutting of pit F121, which juxtaposed Early Neolithic, Grooved Ware, beaker and ?Collared Urn sherds. The radiocarbon date from layer 5 of the inner ditch, c. 1920, may give a general indication for this period of recutting. Finally, Iron Age material was deposited in layer 3 of the inner ditch.

The sequence would then be as follows:

1. ?construction of the oval plan Neolithic structure, with central pit F121.
2. construction of the outer and middle ditches, and the palisade, c. 2780 b.c. ?construction of the oval plan Neolithic structure. partial silting of the ditches.
3. cleaning and refilling of the middle and ?outer ditch, construction of the inner ditch, c. 2600. deposition of groups of "fine" vessels in layers 9-11 of the inner ditch.
4. recutting and refilling of inner ditch, centering on c. 1920, and resulting in the "dumping" of material apparent in layers 5-7. recutting of pit F121, deposition of the beaker and Grooved Ware sherds.
5. ?possible "deliberate deposit" of ?Collared Urn in layer 4, inner ditch.
6. Iron Age occupation, c. 560 b.c.

Whitehawk, Sussex

The causewayed camp at Whitehawk consists of four concentric rings of interrupted ditch, with a possible fifth ring, of which only a section in the northern part of the site survives [see Curwen, 1934, pl. XII]. "...the outer ring is deficient on the east where the hill falls steeply into Whitehawk Bottom..." [op. cit., pp. 99]. Banks were located inside the ditches, with the exception of the second ditch, where the bank appeared to be exterior [see Williamson, 1929, pl. I].

Initial excavations were carried out by R.P. Ross Williamson in January 1929, and further excavations were undertaken by E.C. Curwen in December 1932 - January 1933, in advance of further destruction by enlargement of the Brighton Racecourse. "...about half the circuit of the two inner rings, and considerable stretches of the two outer lines, have been levelled or otherwise damaged by the formation of the race-course and by allotment gardens..." [Curwen, 1943: 100]. The 1929 excavations consisted of six cuttings in the innermost and second ditches, and one in the third ditch [Williamson, 1929: 58, pl. I, 60, pl. II], and the 1932-33 excavations of seven cuttings in the third ditch, and five in the fourth ditch [Curwen, 1934, pl. XIII, XIV]. Beaker pottery was recovered from the upper levels of ditch III, cuttings VII and VIII, and pit 1.

The outer two ditches were wider and deeper than the inner two, averaging 10-14' wide and 5-8' deep. The second ditch was the shallowest, averaging 3' deep by 8-11' wide, while the inner ditch was 5-12' wide by 4-5' deep. Possible traces of what Curwen interpreted as an earlier ditch, following the same line as the present third ditch, were recovered in segments III and VI, ditch III [pp. 107 and pl. XIV]. Part of the

interior between the ditches was examined, and postholes representing an entrance structure, possibly a gateway, were recovered from causeway I of ditch III [*ibid.*, postholes 1-3, 7, 10-11]. Postholes 10 and 11 would appear to overlay the "earlier" ditch.

The ditches were excavated in spits, of 9-10" in the 1929 excavations, and 11" in the 1932-3 excavations, and all finds are recorded by their spit. The same general stratigraphy appears in all four ditches, although the different segments within each ditch can vary considerably [see for instance, Williamson, pl. III, second ditch sections E.F. and K.L.]. Curwen felt that there were three turflines present in the third and fourth ditches, although the post-Neolithic turfline was largely conjectural, and does not appear in Williamson's section of the third ditch [*ibid.*]. From Williamson's sections of the first and second ditch [*ibid.*, sections A.B., C.D. and K.L.] it would appear that there are at least two turflines present; those in the inner ditch resting on the black mould of the "main occupation layer", while that of the second ditch overlying "mould with chalk and flints" similar to the third and fourth ditches. The general sequence is as follows:

- 1) present turfline
- 2) mould with chalk and flints
- 3) penultimate turfline
- 4) mould with chalk and flints
- 5) fine chalk rubble with/without mould
- 6) black mould "main occupation layer"
- 7) medium chalk rubble
- 8) clean/coarse chalk rubble

Layers 1-4 would appear to be above the "ploughline", according to the section plans. Layers 5 and 7 are missing in the inner (first) ditch, and the second ditch, section E.F., while the "occupation layer" would appear to be missing from the second ditch

section K.L., and the third ditch section of Williamson's plans. Curwen states that this layer is missing from the fourth ditch; there is, however (with the exception of section II), a layer of "dark fine chalk detritus" in the fourth ditch, in a position similar to the occupation layer, and apparently containing a large proportion of the recovered artefacts. This same layer, in cutting IV, produced articulated oxen ribs [Curwen, fig. 1, 2]. Charcoal samples from the "primary silts" of ditches three and four produced radiocarbon dates of 2750 ± 130 b.c. (I 11846) and 2695 ± 95 b.c. (I 11847).

In the third ditch, the "occupation layer" contained two burials, both in the ditch terminals [see Curwen, pl. XIV]. Burial I was of a young woman, in a flexed position on the left side, burial II of a young woman, with an infant (possibly a foetus), also flexed, with the bones disturbed or disarticulated. These burials were accompanied by *Echinocorys* shells, and chalk pendants [op. cit, figs. 87, 88]. Further fragments of human bones were recovered from the "hearth" in the occupation layer, cutting IV.

Williamson states that

...immense quantities of Neolithic pottery in a very fragmentary condition were found in all three ditches...there was no evidence of any stratification of the finds. Portions of the same or similar vessels were found at all levels... [Williamson, pp. 61, 63].

It is difficult to be certain from the reports, but it would appear that while pottery and other artefacts were recovered from all levels, the bulk of the material came from c. spit 4 - c. spit 6 (the occupation layer) or higher. Williamson goes on to state that

...it was in this black mould, which contains a considerable quantity of charcoal and vegetable debris, that practically all the finds occurred. Little else than a few roughly worked flints were found in the chalk... [*ibid.*]

Most of the pottery recovered was of Early Neolithic type ("Windmill Hill" ware), although some Peterborough Ware was recovered, from ditch III, cuttings II and V [Curwen, figs. 5-21]. Concentrations of sherds did occur in the inner ditch, cutting VI, spits 2-4, with larger, decorated sherds represented. In the third ditch "...a fair quantity of Neolithic pottery was found throughout the occupation layer...but especially in cuttings IV, V, VIII..." [op. cit, pp. 111]. Noteable concentrations are cutting V, spits 3-4, and cutting VIII, spit 5, which have a high proportion of decorated vessels. The fourth ditch produced only thirteen sherds of Neolithic pottery, and in general the amount of material from the third and fourth ditches was significantly less than from the inner two ditches.

Curwen's section Y through cutting VIII of ditch III shows the relationship between the Neolithic levels, and the level from which the beaker sherds were recovered. The adjoining pit, pit 1, would appear to have been dug at this time [*ibid.*, fig. 4]. Curwen states that the spread of beaker pottery, over the ditch, and into pit 1, was separated from the occupation layer by a layer of sterile silt.

...this means that after the desertion of the Camp by its Neolithic inhabitants sufficient time elapsed for the complete natural silting of the ditch before the Early Bronze Age pottery was deposited on it... [op. cit, pp. 112].

The beaker sherds are a mixed group [op. cit., figs. 41-71, pp. 118-20] ; there is some possible "early" material, rim sherd 55, and body sherds 56, 59, 60, and 69 with comb ornament in the W/MR style (note that 69 is incorrectly identified as cord decoration). A cord ornamented sherd was recovered from the bottom of pit 1. Sherd 67, with rows of oblique grooved ornament could also be "early". A number of the sherds are "middle" types; 48, 49, and 53, representing one pot of step 4-5 type (with comb, not groove, decoration), 41, 45, 47, 50 and 51, probably also belonging to this stage. There are two possible "late" sherds, 43, and 65. While it is possible that more of the "early" material may have come from level 3, there is no firm distinction which can be made between an "earlier" or "later" level, and sherds of the same vessel are mixed between spits 2 and 3.

It would seem that the general pattern of deposition at Whitehawk is very similar to that already discussed at other causewayed camps. The following sequence of activity on the site can therefore be proposed:

1. ?earlier ditch, parallel to ditch III.
2. ditches I-V dug, I-II closely similar, III-IV closely similar, with banks erected interior to the ditches. ditches partially filled with clean chalk, or
3. ditches cleaned/recut and partially refilled with clean chalk rubble (c. 2700 b.c. ?).
4. ditches recut and filled with "occupation rubbish", including two burials in the ditch terminals. pottery of Early Neolithic and Peterborough Ware types.
5. following the possible development of a turfline, beaker activity in the third ditch, cuttings VII/VIII, involving digging pit 1, and deposits on the ditch surface and in "hearth".
6. stabilized turfline forms, post-beaker.

Briar Hill, Northamptonshire

The enclosure at Briar Hill consists of two main causewayed ditch circuits, probably complete, with an inner ditch circuit forming a spiral from the "middle" ditch, and joining it on the eastern side [Bamford, 1985, map in end pocket, see also §fig. 57, pp. 581]. Large gaps in the west and south-west sides (segments 195 and 197, outer ditch west, 248 and 250, inner ditch south-west) mark postulated entrances. The Neolithic enclosure is overlain by Iron Age sub-rectangular enclosures, and field systems.

The site, which has been under cultivation since the Medieval period [Bamford, pp. 3], was excavated by H. Bamford between 1974-78, in advance of its destruction for a housing estate. Beaker pottery was recovered from the upper levels of all three ditch circuits, and several features of the interior.

The nature of the site subsoil, which consisted of sand and gravel overlying clays, much disturbed by cryoturbation, created difficulties in distinguishing between natural and man-made features.

...many of the gullies on Briar Hill were hard to distinguish from man made features because the top 0.20m or so of infill was a brown, loamy sand, very like the fill of some Neolithic or later features... [op. cit., pp. 5].

The topsoil was removed by machine, and the surface trowelled clean to expose the underlying features. Approximately 75% of the inner enclosure, and 30% of the outer enclosure were examined.

Bamford recognized fourteen phases of activity on the site:

1. phases I-VII, c. 3600 - 2600 b.c., construction and successive renovation of the causewayed enclosure.
2. phase VIII, c. 2500 - 1900 b.c., occupation/use of the inner enclosure following the latest recut of the ditch.
3. phase IX, c. 1800 - 1600 b.c., Late Neolithic/Early Bronze Age activity on site, including a series of pits dug in fill of Earlier Neolithic ditch.
4. phase X, c. 1500 - 1150 b.c., Bronze Age cremation cemetery.
5. phase XI, 3rd - 1st century b.c., Iron Age occupation.
6. phases XII-XIV, Roman, Saxon and Mediaeval activity.

The excavated ditch circuits (8 segments of the outer ditch, 18 of the inner and 19 of the spiral arm) consisted largely of pits 1-2m deep. Those in the spiral arm were smaller and shallower [see fig. 19 and table 1, pp. 34]. "...this last, although structurally a continuation of the main circuit, differed in some respects from the rest and most markedly so in its northwestern half..." [*ibid.*] Bamford estimated that approximately 80% of the separate segments examined had at least one major recut, and several had five or more. "...excavation of the Neolithic ditch system revealed that the earthwork had been renovated several times over a long period..." [*op. cit.*, pp. 7]. Several segments (147A, 172A, 302, 331) contained what Bamford interpreted as "marking out" features, which may be analogous to the postulated "earlier" ditches at Whitehawk and Maiden Castle.

The outer ditch stratigraphy consisted of;

1. "primary" fills, weathered ironstone rubble and clean sand

2. secondary fills; weathered and unweathered sorted rubble and sand, with an asymmetrical fill pattern, the heavier fill on the inner side [see fig. 6, 247C, fig. 7, 197B], "...which in the second stage infill consisted of massive falls of loose, heavy, vacuous rubble...[op. cit., pp. 35]"
3. later fills; stony, clayey sand with final loamy infill

The inner ditch was less stony, with deposits of heavy rubble rarer, and more symetrically placed.

1. primary fills; clean soft sand and gravel, overlain by more stony, clayey sand and some rubble
2. secondary fills; deep accumulation of uniform, compact, brown clayey sand, latest recuts may be more stony fill, segments 41C and 124B show substantial falls of loose rubble, on inner side, 'ashy' layers; small tips/dumps of sand and charcoal with concentrations of flint and pottery
3. later fills; darker, slightly loamy

The sequence of the spiral arm of the inner ditch was "broadly comparable to that of some main inner ditch segments..." [op. cit., pp. 36]. However there was a substantial increase in the size and spread of the 'ashy' layers, particularly in pits 166-179, on the northern side. "...the ashy layers filled shallow scoops in the underlying fill, suggesting that the material had been deliberately placed or even buried..." [op. cit., pp. 37].

No traces remained of the banks, which "...must already have been levelled or very substantially reduced by the later first millennium..." [ibid.], however the asymmetrical fill and rubble falls might be used to reconstruct their original locations, as in fig. 20 [pp. 38]. Bamford felt that "...the rapid collapse suggested by the heavy falls of rubble in some places is...most consistent with a steeply angled outer

face, probably revetted with stone..." [op. cit., pp. 38].

After comparing ditch sections, Bamford concluded that "...exactly equivalent sequences of recutting were found repeatedly in segments of all the main elements of the ditch system..." [op. cit., pp. 39], including the small pits on the northwest side of the inner spiral arm. Thus the sequence of ditch filling could be divided into chronological horizons, which were consistent across the site [see fig. 5, pp. 9, and figs. 62-64, pp. 130-32];

- 1) phase I; "marking out" of ditch circuits
- 2) phase II; primary construction of ditch and banks
- 3) phases III-V; three successive (major) recuts
- 4) phases VI-VII; final recutting

A large number of charcoal samples were submitted, with the aim of providing an absolute chronology for the relative sequence, although the results were not, perhaps, what might have been hoped for [see discussion, pp. 126-28]. Of the earliest dates, HAR 2282, 3490 ± 110 b.c., and HAR 4072, 3730 ± 70 b.c., seem to give the best dates for "primary phase" activities; HAR 2282 is from 77A(2), just above the initial fill in the outer ditch (phase II), HAR 4072 from mature timber, feature 219, a post-pipe in a post pit next to the postulated western entrance (although its exact relationship to the enclosure cannot be ascertained). The other two dates from "primary period" features, 176A(1) and 165B(1) of the spiral arm, were surprisingly late; 2180 ± 85 b.c. and 1950 ± 90 b.c. (HAR 5216, HAR 5125), and seem at odds with the date of 3590 ± 140 b.c., from phase VII of the spiral arm (HAR 4092, 128E(4)), and with the phase III/IV date of 2830 ± 120 b.c., also from the spiral arm (HAR 5271, 28C(2)). Bamford commented that

...the dates...would be acceptable only if it were supposed that the spiral extension of the inner ditch...was substantially or entirely later in all its successive parts than the rest of the ditch system...such a hypothesis seems fundamentally absurd and is in no way consistent with the character of the considerable body of pottery and worked flints stratified in the segments in question... [op. cit., pp. 40].

Only two groups of samples produced what appeared to be significant clusterings of dates; those from the final recut, phase VII, and from the Late Neolithic pits in the upper ditch fill, phase IX. The first group (HAR 3208, 4071, 4075, 5217) of samples came from a level just above the primary fills in the inner ditch, had a weighted mean of 2635 ± 40 b.c. This includes a date for the cremation, feature 52 [pp. 32-33], of 2650 ± 90 b.c. (HAR 3208). The second group (HAR 2284, 2389, 4067, 4073, 4089) were drawn from "pits" in the top of the inner ditch fills, associated with Late Neolithic pottery, and giving a weighted mean of 1700 ± 40 b.c. This group could also include the Bronze Age cremation, feature 240 (phase X), dated 1750 ± 150 b.c., and associated with a barbed and tanged arrowhead [F84, see fig. 25, pp. 48].

Several internal features also provided samples for radiocarbon dating, the most interesting being feature 145, a rectilinear slot with post-pipes, dated to 2060 ± 90 b.c. (HAR 2607). This structure produced the majority of Grooved Ware from the site, along with Early Neolithic, Peterborough and beaker sherds.

Finds of all types were heavily concentrated on the spiral arm of the inner enclosure [see tables 3.1-3.4, pp. 59-60], during the Neolithic and Bronze Age periods.

...the density of finds of all types in the spiral arm of the inner ditch was nearly seventeen times greater than the outer ditch and more than seven times greater than in the main inner ditch... [op. cit., pp. 60].

Some of these concentrations showed distinct patterns, for instance retouched flint [fig. 31, pp. 61], which occurred particularly on the western and northern sides of the spiral arm of the inner ditch. Also the stone axe fragments, all but one of which came from the ditch or interior of the spiral arm. Pottery, too, was overwhelmingly concentrated in the spiral arm; between 65-80% of total in any given phase (table 3.3). The table showing pottery by fabric type is enlightening, as it clearly shows the effect of multiple recutting on vertical pottery distribution [table 25, pp. 108]. A summary is given in §table 32, [pp. 507]; Early Neolithic sherds are represented by fabrics A, B, C, D, E1-E3, G; Late Neolithic fabrics by E4 (Mortlake), F (Fengate and beaker), H (beaker), J, K1 (Grooved Ware) and K2 (Peterborough Ware).

Nearly half of the total Early Neolithic sherds are concentrated in the layers of phases VII/VIII, the final recut phase. This "inverted" sequence of distribution is one of the hallmarks of cleaning and recutting activity, along with the largely sterile basal ditch deposits.

...when the fill of the last ditch recuts had reached a level near to or even higher than the modern truncated surface, pits were dug above several segments of the inner circuit and at least one segment of the outer circuit... [op. cit., pp. 47].

These pits were found to contain, along with re-deposited Early Neolithic sherds, a number of Late Neolithic types; Grooved Ware, Peterborough Ware and

beaker. Both the Grooved Ware and Peterborough were largely concentrated in one or two deposits (feature 145, Grooved Ware, feature 124E(8), Fengate ware), and represented a small number of vessels. Beaker ware was the largest component of the Late Neolithic pottery, comprising a minimum of fourteen vessels, and some 120 other undecorated body sherds. As with most of the pottery from the site, the sherds were small, generally worn, and not particularly diagnostic. A number of sherds had rusticated decoration; NP86, NP91, NP94, NP95 [see fig. 56, pp. 117]. Three sherds showed possible all-over-comb or "early" comb-zone patterns (NP90, NP99, NP100), and there was one sherd of all-over-cord (NP105). The herringbone pattern on NP102 would fit nicely in a W/MR context, but is not distinctive to that style. The fingernail impressed bowl, NP106, is unusual, and its context, from the subsoil surface, is not helpful, although it perhaps explains why the base is missing (if the vessel were deposited upside-down). Clarke places the few known beaker bowls with AOC, E and W/MR types, (steps 1-3, "early") and there is nothing in the recovered sherds which would not fit comfortably into an "early" beaker phase. The sherds are scattered across the site, in contexts phase VIII-IX, and do not show any significant concentrations.

In the discussion, Bamford concluded that "...the Neolithic use of Briar Hill can be divided into two semi-distinct periods..." [op. cit., pp. 129];

- (1) before c. 2500 b.c., earthwork constructed and renovated several times,
- (2) c. 2500-1600 b.c., earthwork ceased to be maintained, use of enclosure continued through structures and features in the interior.

This interpretation is based on the apparent parallel sequence of recuts, resulting in seven phases

universal across the site. There are two pieces of evidence, however, which call this sequence into question, and suggest an alternative interpretation. The first is the proposed location of the banks [fig. 20], derived from the asymmetrical "rubble falls" in the secondary silts (above phase VII). These suggest that while the outer and inner ditch circuits, and the north-eastern portion of the spiral arm would appear to have had an inner bank, the remainder of the spiral arm would appear to have had an outer bank.

If this first piece of information is coordinated with the radiocarbon dates derived from the "primary" levels in the spiral arm (HAR 5216, HAR 5125), it would suggest that the present spiral arm is in fact a separate, later enclosure, laid out over the existing inner and outer ditches, and utilizing, perhaps, the eastern section of the inner ditch and bank. The HAR 5216 and 5125 dates would suggest that this enclosure was in place c. 2000 b.c., after the "final recut" phase of the earlier enclosure. The group of dates for that event, phase VII, is instructive, and although drawn from a layer which must be considered disturbed, when analysed (by the Kurskal-Wallis test) produced one of the two significant groups of radiocarbon dates from the site (the other being phase IX). In his review of the Briar Hill report, Mercer considered that the phase VII group of dates might indirectly be used to give a central point for the primary enclosure, or at least to provide a terminus ante quem [Mercer, 1987: 150]. The latter seems more likely, and the occurrence of the heaviest rubble falls above the primary fill might suggest that after a date c. 2600 \pm 100 b.c., and before a date c. 2000 \pm 100 b.c. (by which time it seems likely that the secondary enclosure was cleaned/recut at least once), the original enclosure

was largely filled in, or allowed to fill in, and a new second enclosure, on a different pattern, was erected.

Two further pieces of information can go to support this hypothesis. The first is Bamford's comment on the general stability of the spoil heaps, when discussing the possible collapse of the banks, noting that "...the composition of the subsoil includes sufficient clay to bind sand effectively..." [Bamford, 1985: 38]. It is possible, if the banks were revetted (as is suggested for Hambledon Hill), to envisage the sudden collapse of the banks into the ditch, following the phase VII recut. It is also possible, and more in keeping with what is known of the sequences at other causewayed enclosures, to imagine that the banks could have been used to refill the ditch. This would certainly appear to be the case at at least one point on the enclosure, over the cremation feature 52 of the spiral arm, dated to 2650 ± 90 b.c. The second piece of information is Bamford's comment in discussing the discrepancies in the overall sequence of ditch recutting, that "...part of the outer circuit may not have been renovated after phase VI. In the final recutting (phase VII) almost all the emphasis seemed to have been on the inner enclosure..." [op. cit., pp. 133]. This "abandonment" is further attested to by the appearance of post-Bronze Age wares in the ditch after this point.

This secondary enclosure, with its external bank, and probable entrance structure, in the form of two post-pipes (features 160, 161), constructed probably c. 2000 b.c., and associated with Late Neolithic wares, bears a striking resemblance to henge monuments, of perhaps class I type. Indeed, Mercer has suggested that here "...we might, therefore, at last see the literally registered emergence of a henge form out of the causewayed enclosure form..." [Mercer, op. cit.]. The rectilinear feature, 145, dated 2060 ± 90 b.c., and

associated with Grooved Ware would certainly have parallels in the "cove structures," known from henge monuments. The cremation burial, 52, would also fit into the henge tradition. The beaker sherds appear in the secondary fill of this new enclosure, in a position, and at a period, c. 1700 \pm 100 b.c., comparable to that of henges such as Durrington Walls or Avebury.

The following amendments can thus be suggested to Bamford's sequence of activity on the site;

1. possible pre-enclosure activity, c. 3700 b.c., represented by post-pit 219 (cut by outer ditch), and "marking out" activities, pits 172A, 147A, 302, 331.

"marking out" features could also represent a possible earlier ditch

2. phases I-VII, c. 3600-2600 b.c., construction of inner and outer causewayed ditches, with probable internal banks, cleaned/recut in at least three major phases, associated with Early Neolithic pottery.
3. phase VIII, c. 2600-1800 b.c., possible filling in, partially or entirely of inner and outer ditches, and creation of new enclosure, possibly a henge, utilizing part of inner ditch. also associated with Early Neolithic and Peterborough Ware. erection of rectilinear structure in interior during this period, and possible other post/structures (HAR 4074, 4057, 2625), associated with Early Neolithic, Peterborough and Grooved Wares.
4. phase IX, c. 1800-1600 b.c., Late Neolithic activity, in the form of cleaning/recutting and refilling of the "pits" created, associated with beaker of "early" type.

Hambleton Hill, Dorset

The site of Hambleton Hill consists of a number of Neolithic elements [Mercer, 1980: 13, fig. 9]; the main causewayed enclosure, two long barrows, the outworks of

the Shroton and Hanford Spurs, the Stepleton causewayed enclosure, and a further possible (?causewayed) enclosure on the hillfort spur, beneath the remains of an Iron Age hillfort [Mercer, 1986, fig. 1]. These elements were most thoroughly examined by R.J. Mercer in excavations conducted between 1974-1986, the results of which have been summarized in a series of interim reports and articles, and in Hambledon Hill, a Neolithic Landscape [Mercer, 1980].

The entire area had been extensively damaged by agriculture, particularly in the period since the 1950's, and Mercer estimated that between 0.70 - 1.00 m of subsoil surface had been removed since the Neolithic period [1988: 93]. This has meant that in most cases only the bases of pits and postholes were recovered (if at all) and the upper ditch silts were missing. In addition there was considerable differential preservation of the soil surface across the site.

Beaker material was recovered from all the main Neolithic elements:

1. main causewayed enclosure; interior features, site B, main ditch sites D1, E1, F, inner cross-ditch sites D2, E2, J2, outer cross-ditch, site D2.
2. long barrow, ditch 5.
3. Shroton Spur, inner outwork, site L.
4. Hanford outworks, ditches 2 and 5.
5. Stepleton Spur, areas 1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, 4c, the main enclosure and outwork ditches.

The main causewayed enclosure (MCE) consists of an interrupted ditch and inner bank, with outworks to the east, south and north west. These outworks, also causewayed and with inner banks, were set across the spurs leading to the crown of the hill, and their

similarity both in layout and stratigraphy to the main enclosure (particularly the eastern outworks) would argue for them being part of an overall enclosure plan. They are treated, therefore, as one unit.

Approximately 20% of the ditches, and 20% of the interior were examined, in eleven main areas [A-J, N, P, 1980: 20, fig. 11]. Mercer postulated a sequence of activity:

1. phase 1: digging of the ditch, as quarry for the bank. the bank was probably supported by a timber "box" rampart type of revetment.
2. phase 1a: ditch cleaned, almost all primary silt removed.
3. phase 2: 1st phase of ordered depositions, along mid-line of ditch floor; organics, bone, ceramics, flint debris. placing of human skulls on ditch floor.

several "burials" associated with this phase, in north sector two child burials under flint cairns, in south-east sector part of a young male, also under a flint cairn.

4. phase 3: abandonment of the site, bank collapses into the ditch, forming a layer of sterile chalk rubble. this layer is asymmetrical, with the bulk coming from the inner side of the ditch, suggesting an inner bank.
5. phase 4: digging of a series of steep-sided pits, extending well into the ditch, and filled with dark, ashy material and human skeletal material, ceramics and flint.
6. phase 5: accumulation of slow silting.
7. phase 6: entire ditch circuit recut, at stage when ditch nearly full, followed by deliberate backfilling and multiple recutting in some segments.
8. phase 7: deposition of a mass of flint nodules, associated with beaker pottery of steps 6-7 (level lies just below 1960 turfline).

"...at no point in the ditch circuit has any clear trace of massive deliberate backfilling of the ditch been observed...all indications favour a filling arrived at by slow natural processes..." [1980: 62].

The sequence in the cross-ditches, and the long barrow was similar to that of the main enclosure, although the long barrow lacked the phase of bank collapse (phase 4).

Although evidence for a timber revetment of the banks around the main enclosure is slight (postholes F25 and F29 in area P1), Mercer postulated, taking into account the narrow protected chalk band marking the bank location versus the depth of the ditch, that some form of reinforcement would have been necessary to support the volume of chalk excavated. The outwork on the Shroton Spur did produce clear evidence for timber structures, probably a revetment and gateway [op. cit., pp. 46-7, fig. 28]. Charcoal from posthole F8 produced a radiocarbon date of 2570 ± 80 b.c. (HAR 2368). A broken flint axe was recovered from one of the post-sockets.

The Shroton outworks (areas K, L, M) differed in several respects from those of the main causewayed ditch. The ditch was much larger, and there were no traces of the deliberate deposits of phase 2. Collapsed bank material lay on a thin layer of primary silt, which was in turn covered by secondary silts. These would appear to lack the recuts of the upper levels of the main enclosure. Charcoal from the primary silt produced a radiocarbon date of 2870 ± 120 b.c. (HAR 2378), while three dates came from charcoal in layer 7, the vacuous rubble of the bank, 2730 ± 110 b.c. (HAR 2371), 2680 ± 80 b.c. (HAR 2372), and 2400 ± 80 b.c. (HAR 2379; note this represents three combined samples).

Excavations in the interior of the main causewayed enclosure recovered a number of pits [c. 97], which Mercer suggests contain deposits of a specialist nature. After being dug and allowed to silt, pottery, stone axes, foreign stone and antler, in proportionately higher number than elsewhere on the site, were placed in them. At a later stage in the secondary silting, recutting and further deposits took place, perhaps parallel to the recuttings of phases 4 and 6 of the enclosure ditch. A radiocarbon date of 2880 ± 80 (HAR 9167), from charcoal in feature 14, layer 3, may be related to the early "ritual deposits" (?phase 2).

Beaker material from the main causewayed enclosure, long barrow, cross-ditches, and Shroton outworks, came from three phases [table 33, pp. 508 & fig. 58, pp. 582], 6 (the upper recut, or "slot"), 7 (flint capping), and 8 (tertiary silts and old turf line). The mixed state of this material, particularly in area F, with matching sherds coming from all three phases, and the intermingling of Early Neolithic and Bronze Age material in these levels, would suggest that these layers had been considerably mixed through recutting and refilling activities. Much of the material is quite worn and small (as is the case across the site), and was probably exposed for some time before being incorporated in the ditch fillings.

The phase 6 sherds came from area E1, layer 6, F, layer 6, D2 (inner), layer 6a, (outer), layer 3b, and include vessels P162, P164 and P168⁸⁰. While there are a few "early" elements; a cord decorated sherd, 1491, from F, and a possible bowl, 1463, from D, the majority of the material is from steps 5-7, "middle" or "late"

⁸⁰numbering is after Smith, forthcoming. see also illustrations, §fig. 58, pp. 582.

types, which is true for the majority of beaker sherds from the site.

The phase 7 sherds came from F, layer 3a, D1, layer 3, J2, layer 4, and the long barrow, feature 3. They include P168, P163, and P161. P161-3 are heavy, rusticated vessels, reminiscent of Clarke illustrations 1037-1050 [vol. 2, pp. 410-411]; P168 is a southern type, probably S1 (step 5), while P164 is probably step 6-7. The sherds from J2 and the long barrow each represent one vessel, probably the result of "placed" deposits rather than accumulations of sherds. They are indicative of a second type of beaker depositional activity, which seems to have taken place across the site, involving the deliberate burial of individual vessels, usually in the uppermost of the remaining silts. Other such vessels come from the Hanford outworks, and the Stepleton enclosure. This activity would appear, stratigraphically, to follow on from that associated with the upper ditch recuts. Both vessels mentioned above have rusticated decoration.

Phase 8 (tertiary silts) sherds came from D2, layers 3, 4, E1, layer 3, and F, layer 3; (old turfline) sherds from D2, layer 2, and E2, layer 2. Again the material was largely "middle" or "late", with a relatively large proportion of rusticated sherds. D2, layer 2 produced a single undecorated vessel, stratified above the other material.

The state of preservation, and proportion of decorated sherds was markedly higher in area F, layers 3, 3a, and 6, than elsewhere in the main enclosure, and this group of sherds (c. 114), may represent a significant concentration of material. Unfortunately this cannot be related to any structural feature. The overall distribution on and around the main causewayed enclosure was:

phase 6 ('slot')	54 sherds	10%
phase 7 ('capping')	200 sherds	39%
phase 8 (tertiary silts)	212 sherds	41%
phase 8d (old turfline)	53 sherds	10%

Not surprisingly, the largest proportion of sherds came from the 'capping' and the tertiary silts.

The Stepleton enclosure is represented by a causewayed ditch, which differs markedly in character between its south-east, and north-west sides, with flanking outwork ditches, one of which extends from the enclosure ditch [1988: 99, fig. 5.3]. The ditch "...was at almost all points⁸¹ far more massive in proportion than the ditch of the main causewayed enclosure..." [1980: 49], and the area of protected chalk with the ditch produced evidence, particularly in areas 3b and 4a of a timber box-rampart type of revetment, which must have supported the bank, at least in the later stages (phase 2b), and was radiocarbon dated to 3090 \pm 80 b.c. (feature 603, HAR 4437), 2830 \pm 100 b.c., 2820 \pm 80 b.c. (feature 601, HAR 4437). Mercer postulated the following sequence of events:

1. phase 1. construction of a causewayed enclosure, c. 1 ha in area; univallate ditch and bank, with possible entrance in the north west, flanked by a substantial row of posts. this ditch, ditch 1, survives only in the north and west sides.

phase 1a. ditch 1 is cleaned, removing primary silts; first remaining deposits are red deer antler and flint knapping *in situ*.

⁸¹on the east and south sides, which were all that had been excavated in 1980. On the north and west sides the ditches were much slighter [R. Mercer, pers. comm.]

2. phase 2a. inner outwork "predecessor" (ditch 2) is constructed, enclosing the whole summit, and obliterating ditch 1 on the south and east sides, and continuing up to, and probably beneath, the present hillfort ramparts.

"...as it passed the cross-ditches of the MCE it swung sharply outward to avoid them, implying that these...were in position at this time..." [1988: 101].

the phase 1 rampart collapsed on top of the remains of this phase 2a rampart.

3. phase 2b. the inner outwork "predecessor" was reconstructed, ditch segments deepened or reformed, and a new timber framed box rampart constructed, which appears to have been faced with hurdling, traces of which survived, and produced a radiocarbon date of 2890 ± 90 b.c. (HAR 4433). this enclosure was carried around to the Shroton and hillfort spurs, with three "gateways" along its length.

at a later stage (phase 2c) two further outworks (ditches 3 and 4) were constructed, paralleling ditch 2, the inner with a box rampart reinforced bank, the outer with a dump bank.

4. phase 3. at a point when the outwork ditches were in a clean condition, the enclosure was destroyed by fire, the result of an apparent hostile attack. charcoal from the burnt timbers was deposited in the outwork ditches. this was followed by the rapid collapse of ditches 2 and 3, and later by the collapse of ditch 4.

Although Mercer ends his interim discussion of the stratigraphic sequence at this point, it would appear from an examination of the Stepleton ditch sections that following on from the collapse of the phase 2b ditch (which appears as layer 2a in the conjoining section of ditch 1; a deposit of burnt vacuous chalk rubble),

5. phase 4. was the accumulation of secondary silts (layers 3, 3a, 3b in most cases), which lie above and around the vacuous chalk rubble. above this was

6. phase 5. the tertiary silts (layers 2, 2a, 2b, and 3, depending on the section). the exact sequence varied, but the general pattern was for a layer of silt overlying phase 4, with one or two recuts. above this was
7. phase 6. the final silts (layer 2 or 1).

Beaker material was recovered from the layers of phases 5 and 6 [table 33, pp. 508].

As in the main causewayed enclosure, the beaker material appears fairly "well sorted" between layers 1-3, and sherds of the same vessel occur in more than one layer. By type it is primarily steps 5-7, "middle" and "late", with perhaps a slightly greater proportion of "late" material than the main causewayed enclosure. This is reinforced by the apparently greater frequency of Food Vessel or Collared Urn sherds with the beaker material in the Stepleton enclosure.

From ditch 1 contexts (areas 3a, 3c, 4a, 4b) forty-seven sherds were recovered, including a possible "early" rim, 2505 (area 4a, unit 25, ly. 3). A sherd of Early Neolithic ware, and a sherd of Peterborough Ware were recovered, attesting to the mixing of material from earlier deposits. The remaining material was "middle" - "late" or non-diagnostic. An undecorated vessel was recovered as a "deliberate deposit" from layer 1, continuing the pattern seen in the main causewayed enclosure.

From ditch 2 contexts (areas 1a, 1b, 2b, 3b) eighty-nine sherds were recovered, including one sherd of P160, the step 7 handled beaker, and P166, a step 6-7 rim. Several bases were recovered from ditch 1, a larger proportion than elsewhere on the site; these again are from the uppermost levels, and may represent "deliberate deposits" of beakers in an everted position, whose upper portions were removed by subsequent activities.

Outwork ditch 3 (areas 1b, 2b, and 3b) produced forty-one sherds, and outwork ditch 4 (areas 2b and 3b) fifty-five sherds, and a further twenty-four sherds came from the Hanford outworks (probably representing a continuation of ditches 3 and 4 of the outwork system), again from an upper level recut. These included P160, the handled beaker, which would appear to be another "deliberate deposit" and a number of sherds of steps 5-7 type. Analysis of sherd deposits by location shows:

Ditch 1	47 sherds	20%
Ditch 2	89 sherds	38%
Outwork Ditch 3	41 sherds	17%
Outwork Ditch 4	55 sherds	23%
Hanford Ditches	24 sherds	10%
= 236 sherds		

a fairly even distribution of material, with a slightly higher concentration in ditch 2. The material from Stepleton represents 31% of the beaker material from Hambledon Hill, the remaining 69% coming from the main causewayed enclosure, long barrow and Shroton outworks. This is in contrast to the Early Neolithic material, which was divided almost equally between the main causewayed enclosure (53%) and the Stepleton enclosure (48%) complexes.

It is difficult to correlate the overall sequence of events on Hambledon Hill, with any degree of certainty. In part the difficulties spring from the nature of the radiocarbon dates, particularly those for the timbers of the Stepleton phase 2b rampart, which are taken on mature timber, and could be anything up to c. 300 b.c. years too old. Given Mercer's assertion that the phase 2 outworks turn to avoid the cross-ditches of the main

causewayed enclosure, and a date from the primary silt of the southern-cross ditch of 2790 ± 90 b.c. (NPL 96) this makes correlation between the early phases of the two sites problematic.

It is possible, however, to be somewhat more positive towards the end of the sequence. If the date from Hanford ditch 3, taken on an ashy deposit on the ditch floor, 2580 ± 110 b.c. (HAR 6038) can be correlated with destruction of the ramparts of ditches 2 and 3, then the destruction phase of the Stepleton enclosure may equate to phases 4-5 of the main causewayed enclosure (a charcoal sample from the 'slow silting' phase 5, MCE was dated to 2570 ± 80 b.c., HAR 2369). This would seem reasonable, as there would appear to be a general "abandonment" of the hilltop c. phase 5 of the MCE, phase 4 of Stepleton, which would be in keeping with the aftermath of what must have been a momentous conflagration. Following on from this, after what was probably a fairly long period (perhaps indicated by the dated from feature 57, area B, MCE) there was a renewed period of activity, correlating to phase 6 of the MCE, and phase 5 of Stepleton, which involved widespread recutting of the ditches, and new deposits of material, of Late Neolithic type, of which beakers formed the largest proportion. These beakers were largely of steps 5-7, "middle" to "late" types, and seem to have been incorporated in the ditch silts through fairly random accumulation of material from the surface of the site surface. This phase of deposition was followed by the accumulation of further silts, into which "deliberate deposits" of single beaker vessels appear to have been made, of similar period to those which would seem to be stratigraphically lower, and probably following shortly after the "earlier" deposits.

Summary

Again, there are a number of features which are common to the sites discussed in this chapter, which can be briefly summarized:

1. as already noted on henge monuments, the association of beakers with later, and particularly final ditch fills of causewayed enclosures, frequently incorporated in a "Late Neolithic" recut of the upper ditch silts.
2. the tendency for beaker-period (and also Bronze Age) deposits to be made in and around the most upstanding or outstanding remaining features of the earlier period, ignoring previous use-patterns.
3. the general prevalence of "later" beaker types, and the dicotomy between "early" beaker types on sites in "early" beaker areas, and "later" beaker types on sites in "later" beaker areas.
4. the occurrence of "burial deposits" in the late or final ditch fills, usually of "later" beaker type, and, where the stratigraphic evidence exists, later than the non-burial type deposits.

Chapter 8: Analysis of Depositional Patterns on Henge Monuments and Causewayed Enclosures

...the more one digs the more the mystery appears to deepen... [Hawley, 1926: 16].

Having considered in depth the beaker deposition patterns on individual henge monuments (ch. 6) and causewayed enclosures (ch. 7), it is now necessary to consider what overall patterns of deposition may occur. Although the discussion below relates specifically to the evidence drawn from sites containing beaker deposits, it is the opinion of the author that many of the general conclusions can be applied to all sites of these types.

First, in reviewing the evidence presented, it becomes apparent that a number of practices are common to most sites regardless of period. The most notable of these is the renewal of ditches, through "cleaning" and/or recutting activity, usually followed by refilling (either by deliberate backfilling of banks, dumping of material from elsewhere on the site, or some other method). These activities have a profound effect on the structure and order of the ditch fills, and thus on site histories, many of which depend on analysis of the "primary fills."

Following the pioneering work at Overton Down and Wareham, it has become increasingly clear that the "coarse chalk rubble" or "coarse clean gravel/sand" forming the "primary silt" in almost all henges and causewayed enclosures is not the result of initial weathering of the ditch sides and lip, but of backfilling (whether deliberate or the result of natural processes) at a later stage, usually following an unknown number of episodes of ditch renewal. Occasionally this activity can be discerned, for instance in the inner ditch at Abingdon [Avery, 1982], trench III of the ditch at Maiden Castle [Sharples, 1986], possibly ditch 3 of Whitehawk [Curwen, 1934], where the renewed ditch followed a

slightly different line than the earlier ditch⁸². The remaining "primary fills," rather than initial silting, are thus more likely to represent the last stage of cleaning or recutting (at least to that depth), to be followed by filling, and further recutting at a higher level of the ditch silts.

This, of course, has a significant effect on the interpretation of radiocarbon dates taken for the "primary silt", and by inference, the construction of the monuments. Rather than representing a floruit for the construction of causewayed enclosures in the mid-third millennium b.c., dates from these coarse and largely sterile silts would suggest an early (and probably extensive) phase of ditch renewal, with a terminus ante quem centering on 2700 b.c., after which time most ditches were filled or allowed to fill, until the next renewal period began [§see appendix 5.1, pp. 456 & fig. 59, pp. 588]. The actual construction phase for most causewayed enclosures must then be pushed back to the beginning (and possibly well into) the fourth millennium b.c.

The same phenomenon of ditch recutting occurs on henge monuments, where the "primary silts" have produced radiocarbon dates suggesting a terminus ante quem for this renewal activity c. 1950 - 2150 b.c. [§appendix 5.2, pp. 457 & fig. 61, pp. 590], pushing the construction phase into the mid-third millennium, and perhaps contemporary with the initial renewal activity on causewayed enclosures. Although dates are generally lacking for the later phases of ditch renewal on causewayed enclosures (and would be somewhat suspect anyway), sequences at sites such as Abingdon and Hambledon Hill may suggest that a further period of ditch

⁸²see also Robin Hood's Ball, Thomas, Wilts. Archaeol. Mag., 1956, and Whitesheets Hill, Piggott, Wilts. Archaeol. Mag., 1951.

renewal was taking place on causewayed enclosures, in parallel with the "early renewal" of henge monuments. Certainly the (potentially) transitional sites of Briar Hill and Stonehenge would suggest some parallelism of sequences; the dates for the "construction" (primary silt) of Stonehenge I, in its "causewayed enclosure" type structure [Mercer, pers. com.], would fit within the range for this postulated "early renewal" period on causewayed enclosures, while the "constructional" dates for the spiral arm ("henge phase") of Briar Hill [Mercer, 1988] are well in keeping with the henge "early renewal" period.

The effect of multiple recuts and refillings renewals on ditch stratigraphy is to move earlier material further up in the ditch silts, juxtaposing it with later material, and, particularly in the case of refilling by dumping, to add material of unknown origin to that already in the ditch. Except in the case of deposits at the end of a sequence, where that phase lies below subsequent disturbance, ditch renewal also removes traces of ritual activity involving the deliberate deposit of individual or groups of artefacts. The end result is frequently an "inverse stratigraphy" of artefacts, particularly pottery, where the bulk of material is contained in the top layers, and represents a mixture of all periods (where the last period represented presumably indicates the latest phase of activity). This is the case in almost all sites examined, the exceptions being Arminghall, a site unique in a number of respects, and the outer ditch at Abingdon. The disturbance of the stratigraphic sequence has a number of consequences for the analysis of deposits, particularly those of the upper fills, the position almost invariably occupied by beaker material. First, it means that radiocarbon dates for these layers, particularly when drawn from charcoal deposits, at the very least must be viewed with caution,

and interpreted as general indications of period, rather than as secure dates. Second, it means that much of the information relating to "deliberate deposits" is beyond reconstruction. This is particularly unfortunate at sites such as Hambledon Hill, where traces of an earlier phase of "burial" of beakers may well have been obliterated.

"Deliberate deposits" represent a second type of activity common to most henges and causewayed enclosures, and indeed to most ritual or ceremonial sites of the period. They encompass the placement of an artefact or group of artefacts in a manner which would be uncommon for "normal domestic rubbish" or natural silting. Examples are the clusters of antlers in the base of the ditches at Windmill Hill [Smith, 1965], or Maiden Castle [Wheeler, 1943]. Sometimes the frequency of different object types can be indicative of deliberate deposition; the clustering of axe fragments in the pits at Hambledon Hill [Mercer, 1980], or the concentrations of Grooved Ware sherds at Durrington Walls [Thorpe and Richards, 1984]. "Burial" of items within the ditches, singly or in groups, represent another form of deliberate deposit. In the case of beaker pottery, these deposits are usually represented either by the placement of individual vessels, often in an inverted position, or by concentrations of large and often highly decorated sherds, absent elsewhere on the site⁸³. It is the interplay between ditch renewal and deliberate deposits which gives indications of the pattern of ritual activity on these sites.

There would appear to be two general processes involved in the deposition of beaker pottery on henges

⁸³The former referred to as "deliberate deposits," the latter as "scattered deposits" subsequently in the text. In fact, both of these patterns represent forms of deliberate deposit.

and causewayed enclosures. These two processes seem to be largely concurrent [§on the basis of available radiocarbon dates, see fig. 64, pp. 593], regardless of beaker type and area, or type of site, and centre on the period c. 1750-1550 b.c. They are:

Henges:

Type 1. deposition of sherds in the "middle" fills of ditches; occurring mainly on large, southern henges, frequently associated with late/final renewal of ditch deposits and/or with the "lithicisation" of previously timber settings.⁸⁴

sites: Arminghall, Dorchester "Big Rings," Durrington Walls, Mount Pleasant, Stonehenge, Sanctuary, Woodhenge, possibly also Avebury

Type 2. deliberate deposition of a single vessel or group of vessels, usually as a "burial" deposit (in cist or grave); mainly on smaller, northern henges, usually associated with the modification of the henge structure into a "burial place," often by the addition of cist(s) and cairn, particularly on northern and western sites which are associated exclusively with "middle" or "late" beakers.

sites: Avebury, Balbirnie, Balfarg, Ballymeanoch, Cairnpapple, Llandegai, Milfield North, North Mains, possibly also Gorsey Bigbury, Figsbury Rings, Stonehenge, Sanctuary

Causewayed Enclosures:

Type 1. deposition of beaker sherds in the final fills of ditches (as type 1 for henges); frequently associated with final ditch renewal, deposition pattern often corresponding to most prominent remaining physical features, cross-cutting previous use patterns.

sites: Abingdon, Briar Hill, Hambledon Hill, Maiden Castle, Orsett, Whitehawk, Windmill Hill

⁸⁴"Scattered deposits;" these deposits would appear to be the result of incorporation of material already in a fragmented state (i.e. a large proportion of the vessel already missing), rather than deposits of vessels whose sherds were scattered after deposition, through recutting/refilling activities.

Type 2. deliberate deposition of a single vessel or small groups of vessels, in final or terminal ditch silts (often just below turf-line); this may occur in conjunction with (1), although usually stratigraphically later.

sites: Knap Hill, Briar Hill, Hambledon Hill, Offham

(note--some sites may occur in both categories, as both processes are recognized)

Common to all sites and processes is the basic division by "beaker type" area, with "early" beakers occurring on sites in "early" areas, and "middle" - "late" beakers on sites in "later" areas [§figs. 62-63, pp. 591-2]. Thus beaker material from sites such as Offham or Arminghall, in "early" beaker areas, is of "early" type, while that from Gorsey Bigbury, or Knap Hill, in "later" beaker areas is "middle" to "late" in type. This distinction is not absolute (there is "middle" to "late" material from Whitehawk, for instance), any more than beaker type distribution in these areas is absolute, but represents a general distinction, where the greater proportion of material on an "early" area site will be of "early" beaker type.

Beaker material as a component (type 1) of the ditch fill appears to be a phenomenon of the southern, and particularly the great henges, including the sites of Durrington, Mount Pleasant, Stonehenge and possibly Avebury. In almost all cases these deposits occur in the late to final fills, often as the last deposits before an apparent hiatus, and subsequent Iron Age recut, as at Durrington and Mount Pleasant. In several cases there are clear indications of recutting at this stage, particularly at Mount Pleasant, where it may be possible to see two "beaker recuts" in the ditch silts of site IV. The first of these extended possibly into the "primary silt", certainly encompassing the secondary silts, and contained beakers of "early" type, the second was confined to the tertiary silts (? and top-most

secondary), and consisted mainly of "later" ("middle" and "late") beaker types. It is interesting that the majority of beaker sherds from the site are "early", the remaining "later" sherds being from the 'aeolian sediments' of the main enclosure ditch, as examined at the north and west entrances. At the west entrance, this layer cuts the "primary silt" and can possibly be associated with modification of the entrance terminals.

Although the full record is not yet available, it would seem from an examination of the section drawings and pottery catalogue⁸⁵, that a "beaker" recut may also have occurred at Dorchester XIII "Big Rings." Careful examination of sections 4, 5 and 8 suggests that the layer of "red earth" recorded below the main sandy fill may be the remnant of the "primary silt," cut away by the beaker-period deposit above. These in turn were disturbed by Romano-British activity. The sherds of Early Neolithic and Peterborough Ware, mixed in the beaker layer, may have come from this truncated initial silt.

The exception to this pattern is the site of Arminghall, where the beaker sherds were recovered from a charcoal layer at the base of the inner ditch, with sherds of Peterborough Ware. Healy [Healy, 1984: 102-3, 113] has suggested, on the basis of these sherds, that the inner ditch may post-date the outer ditch and timber horseshoe by a considerable period. The symmetry of plan of the inner ditch and horseshoe would argue against this, however, and it would be more reasonable to suggest, on parallel with other henge sites, that this deposit may be the end of a sequence of cleaning and recutting activity, which removed the primary silts. As suggested earlier [see ch. 6, pp. 246], the charcoal may

⁸⁵see ch. 6, pp. and figs.

in fact have been laid down during the destruction phase of the timber horseshoe, after which the ditch silted naturally, until much later Iron Age activity. This would fit with a general pattern of site modification during the "beaker phase," although in a somewhat different manner than otherwise observed.

This recutting of upper level deposits can also be seen in the post-holes and stone-holes, making up the timber or stone circles common to almost all these sites. With regard to post-holes, recutting of the tops of the post-hole, often truncating the post-pipe (where visible) appears common. This is not confined to the southern henges; the best known instance is North Mains, Strathallan, where in period III the post-holes of circle A (and possibly also the ditch) were recut, and "late" beaker pottery deposited [Barclay, 1983]. Examination of the post-hole sections of the palisade at Mount Pleasant would suggest that a number of the post-tops were recut at this stage [see Wainwright, 1979: figs. 31 & 34]; certainly the bulk of finds came from this level, including "early" beaker, matching that from the earlier recut at site IV. The phase II post-holes of the southern circle at Durrington may also have been recut in this fashion. Unfortunately there is no stratigraphic record for the post-holes of the Sanctuary and Woodhenge so it is impossible to determine if similar recutting took place on these sites.

Beaker sherds were also recovered from the stone-holes of most stone settings associated with these henges, again generally from the upper fills. In several cases beakers may have been associated with the construction phase of the stone setting; at Stonehenge from the Q & R stones, the sarsen stones, and possibly the Heel Stone [Hawley, 1928, Atkinson, 1979, see also pp. 279], Avebury from stone-hole 41 of the outer ring, and the

West Kennet and Beckhampton Avenues [Smith, 1965, Cunnington, 1913], and from the Sanctuary, stone-hole C12 [Cunnington, 1929]. It is of interest that all these deposits are of "early" beaker, and that the stone settings represent in all cases a major modification, a "lithicisation," of the existing monumental structure, and the addition, or possibly in the case of the Sanctuary, re-alignment, of an avenue [see also comments on Balfarg, footnote 11, pp. 294].

Frequently, the beaker deposits are concentrated in one part of the site, particularly the ditch terminals, as at Durrington Walls and Mount Pleasant. One of the largest deposits of beaker material at Mount Pleasant occurs in section III of the palisade trench, which is opposite the west entrance of the main enclosure. It seems highly likely that this deposit is related to the modification of the west entrance ditch terminals--a significant narrowing of the entrance, which may have parallels in the blocking of chambered tombs and long barrows.

Most of the sites in this group produced deposits of "early" beaker (Stonehenge, Woodhenge, Avebury, The Sanctuary, Arminghall) the exceptions being Durrington Walls and Dorchester XIII, where the deposits were of "middle" beaker type. At Mount Pleasant, where the greatest proportion of material would appear to be "early," there is evidence to suggest that the "later" beaker was stratified above the earlier material, both at site IV and in the post-holes of the palisade. Analysis of deposits would suggest the following sequence:

Beaker Type	Site IV	Main Enclosure	Palisade
"early"	? 'primary' silt	--	?base post-holes
	secondary silts	--	recut, top post-holes
"later"	tertiary silts	'aeolian' silts	tops post-holes

"Earlier" beaker material may also be stratified below "later" at Durrington Walls, where possible "early" beaker sherds were recovered from under the bank (old land surface).

The predominance of "early" beaker types on type 1 sites is in contrast to the second depositional pattern (type 2), where the majority of beakers are of "middle" or "late" type, exclusively so for the northern and western sites. Henges in this group include Balfarg (and the associated site of Balbirnie), Ballymeanoch, Cairnpapple, Llandegai, Milfield North, North Mains, Gorsey Bigbury, and perhaps Figsbury Rings. This latter site was extensively damaged by Iron Age activity. however, it seems likely that the beaker sherds recovered represent one vessel (and certainly no more than three), of "early" type. Other "deliberate deposits" of "early" type were recovered from the final Neolithic fill of the ditch at Woodhenge, and associated with burials at the Sanctuary and Avebury (West Kennet Avenue).

On most of the sites in the second group, the period of beaker deposition is associated with the modification of the site into a "burial place". This usually involves the addition of cists or grave pits, as at Ballymeanoch, or Balfarg, sometimes covered by a cairn, as at Cairnpapple and Balbirnie. In only one case does the beaker burial occur in a central grave; a "late" handled beaker in the "central" cist at Balfarg. In all other

instances the beaker burial is peripheral or secondary, usually to a Food Vessel deposit. A "late" beaker is peripheral to a Food Vessel cist at Balbirnie, and also at North Mains. "Middle" beakers occupy peripheral or secondary positions at Cairnpapple and Milfield North. There was no pottery recovered from the central graves at Ballymeanoch or Llandegai, although it is possible that the cist at the former had been disturbed previously.

This "secondary" position of beakers is interesting, particularly in view of the contemporaneity of Food Vessels with beakers of steps 4-6 [§"middle", see fig. 41, pp. 555]. It would be possible to suggest, at least in the case of "late" beakers, that the beaker burials post-date those associated with Food Vessels. However, overall plan of deposits at these sites (certainly in cases where a cairn subsequently covered and supported the cists) would suggest that both types of burial were largely synchronous. The radiocarbon dates from North Mains, 1540 ± 65 b.c. for Food Vessel and 1450 ± 60 b.c. for beaker sherds would support this. The peripheral position of beaker burials may be a result of the relatively late "uptake" of beakers in the north [§from step 4 onward, see table 3, pp. 63], particularly in Scotland, where their use does not appear to have "taken hold" until steps 5-6. This may also help to explain why the southern "deliberate deposits" are of "early" beaker types (predominantly W/MR, step 2-3), where "early" beakers represent the greater proportion of beakers recovered.

The exception to the association of burial with deliberate beaker deposit is Gorsey Bigbury. The completeness of many of the surviving vessels suggests that they may have been deposited entire, however the state of recording, and subsequent disasters which have befallen this material makes reconstruction of the

depositional pattern impossible. Some 30-40 vessels appear to be represented, perhaps less, and the very narrow range in both decorative technique and type is suggestive of a short-lived activity, in keeping with the "single burial deposits" at the other sites in this group.

The depositional pattern on causewayed enclosures closely parallels that of henge monuments, which suggests that, by the period under discussion, these two site types were roughly equal in status within the overall pattern of ritual activity. Sites of type 1 (beaker sherds in the upper/final fills) include Windmill Hill, Maiden Castle, Abingdon, Whitehawk, Briar Hill and Hambledon Hill. In most cases these fills are associated with a late or final recut of the ditches. Frequently the distribution of beaker sherds (and other Late Neolithic/Early Bronze Age sherds), and/or the pattern of recutting differs from that of earlier Neolithic phases. This may, in large part, be due to the tendency for later "depositors" to select the most outstanding/upstanding remaining features of these enclosures for their activities.

At Windmill Hill the beaker sherds are concentrated in the outer ditch, particularly segment II, which is in contrast to the Early Neolithic material, most of which was found in the inner ditch. This "middle" beaker material occurs as part of a Late Neolithic recut, which also includes sherds of Grooved Ware. A similar situation is found at Whitehawk, where the concentration of beaker material in the upper silts of ditch III is in contrast to the Early Neolithic material, primarily from ditches I and II.

At Briar Hill and Hambledon Hill this Late Neolithic-beaker phase is marked by a very clear recutting of the

ditches, by a series of pits (phase IX) at the former site, and as an almost universal "slot", covered by a flint cairn, at the latter. These recuts seem to have had very little relation to the Early Neolithic use-pattern, and generally result in beaker material being scattered across the site, rather than being distinctive concentrations in the Early Neolithic phase(s).

At four of the sites, it would appear that a small component of "early" beaker material may be stratified below the "middle" to "late" material which constitutes the bulk of the beaker deposit. At Windmill Hill this "early" component occurs in segments of inner ditch VII and outer ditch IV, at Whitehawk, at the base of pit 1, and in layer 3 of ditch III. At Maiden Castle, Sharples recovered all-over-cord beaker from the middle fill of the Long Mound ditch, while a few sherds of "early" type appear to have come from the central fill of the causewayed ditch in area R of Wheeler's excavations. "Early" material can possibly be associated with phase 6 at Hambledon Hill, from cuttings F and D. In all cases these deposits, which are stratified with a mixture of Late Neolithic types (Peterborough Ware, Grooved Ware) appear to be overlain by layers containing "middle" or "late" beaker material.

"Middle" and "late" beaker types represent the majority of beaker sherds at Windmill Hill, Maiden Castle, Whitehawk, and Hambledon Hill, while "early" sherds predominate at Abingdon and Briar Hill. Concentrations of more highly decorated sherds may occur; the sherds from Maiden Castle areas F and G (final fill, layer 1) and Windmill Hill, outer ditch II are examples of this.

Deliberate deposits (type 2) of a single vessel or group of vessels occurs at the sites of Knap Hill,

Orsett, Offham, Briar Hill and Hambledon Hill. At Knap, Orsett and Offham, type 2 deposits are the only beaker material from the site. The beaker sherds from Knap are "middle" type, and represent at most 3-4 vessels, recovered from the upper ditch silts. The all-over-cord beaker from Offham is a "burial" deposit, a single vessel placed entire, in the secondary silts of the inner ditch. At Orsett the "early" vessels are fragmentary, however, they occur only in the recut of feature F121 (the central pit of the Neolithic structure), with almost all of the recovered Late Neolithic/Early Bronze Age pottery from the site, strongly suggesting deliberate placement.

At Briar Hill and Hambledon Hill, deliberate deposits of single vessels occur in addition to scattered material in upper ditch fills, and would appear to post-date these type 1 deposits stratigraphically. At Briar Hill, an all-over-cord beaker bowl was recovered from just below the turf of the interior; it's relationship to the ditch deposits cannot be ascertained with certainty, but it would appear to be higher up in the sequence than the phase XI pits. At Hambledon Hill the sequence is clearer, with deposits of single vessels in sections J2, D2 of the Long Barrow ditch, and Outwork ditch 3 of the Stepleton enclosure stratified above similar type beakers in the upper silts. Unlike henges, however, no skeletal material appears to be associated with these deposits⁸⁶.

Analysis of the few radiocarbon dates available would suggest that all beaker deposits were contemporary within two standard deviations [a list of available radiocarbon dates is given in appendix 5.4. pp. 461]. Tukey's hinges (inner interquartiles) for the deposits as a whole would suggest a range of 1550 - 1750 b.c. The majority of dates fall within 1450 - 1850 b.c. (between the 10% and

⁸⁶there is, however, an unassociated crouched inhumation within the Stepleton enclosure [Mercer, pers. com.]

90% percentiles). Analysis of the deposits are divided into two types; by site type and by type of deposit (called "scattered" and "deliberate"). In each case percentiles (for 5, 10, 25, 50, 75, 90, and 95 percent), based on weighted averages (WAVERAGE⁸⁷), and Tukey's hinges⁸⁸ were calculated. If we compare the hinges;

Analysis Type	25%	50%	75%	n
Date bc (All Types)	1556	1680	1765	33
Causewayed Enclosures	1565	1725	1840	8
Henge Monuments	1556	1680	1720	25
Scattered Deposits	1556	1670	1720	21
Deliberate Deposits	1596	1714	1836	12

it is evident that the ranges, regardless of type of site, or type of deposit, are overlapping, and fall comfortably within the "middle" (step 4-6) beaker period. If both site type and deposit type are separated,

Analysis Type	25%	50%	75%	n
Scattered Deposits on Causewayed Enclosures	1540	1630	1780	6
on Henge Monuments	1583	1680	1708	15
Deliberate Deposits on Causewayed Enclosures	1840	1881	1921	2
on Henge Monuments	1540	1685	1800	10

again the ranges are complementary, with the exception of deliberate deposits on causewayed enclosures, where a sample of two cannot be considered statistically meaningful (or representative). Kurskal-Wallis analysis of these various groups shows no significant difference in radiocarbon date.

Analysis of deposits by beaker type ("early", "middle" and "late") provides no further division. It is unsurprising that Kruskal-Wallis analysis ranks the

⁸⁷SPSS, 1988.

⁸⁸see Boxplots, pp., and ch. 1, pp.

groups in "early" - "middle" - "late" order. It does not, however, indicate a significant difference between these groups [§see figs. 64-69, pp. 593-6]. The possible exception may be the "late" group, which is (again unsurprisingly) somewhat later than the earlier two, although the sample size is quite small.

Beaker Type	25%	50%	75%	n
All Types	1556	1680	1765	33
Early	1670	1708	1770	14
Middle	1583	1669	1758	15
Late	1327	1390	1495	4

It may, however, be significant, that three of the four "late" beakers are deliberate deposits (type 2) on Scottish henge sites (the fourth is from the upper silts of Mount Pleasant).

It is interesting to note the proportions of site type and deposit type for each beaker type;

Beaker Type	Causewayed Enclosures	Henge Monuments	Scattered Deposits	Deliberate Deposits
Early	4 (3)	5	5 (4)	4
Middle	5	6	6	6
Late	(5)	5	(6)	5

(based on number of sites with beaker deposits of this type, numbers in brackets indicate possible deposits)

which would suggest that there are no causewayed enclosure sites with distinct "late" beaker deposits, also that there are no "scattered" deposits of distinctly "late" beaker types. This would agree with two points mentioned earlier, first, the tendency for "later" beaker types to be more common in the north and west of Britain, and second, the stratigraphic sequence noted at several sites, where deliberate deposits would appear to overlies scattered deposits. Further, if the additional possible "early" deposits are considered, especially where they

may underlie "later" material, the table would suggest that the majority of "early" deposits belong to causewayed enclosure sites, or are of "scattered" type. It would, then, be possible to build up a sequence of deposition;

Table 13: Summary of Depositional Patterns on Causewayed Enclosures and Henge Monuments

Beaker Deposits:

1850	<u>Early Type Beakers</u> Causewayed Enclosures (Henge Monuments) "Scattered Deposits" South/East Areas
1650	<u>Middle Type Beakers</u> Causewayed Enclosures Henge Monuments "Scattered Deposits" "Deliberate Deposits"
1400	<u>Late Type Beakers</u> Henge Monuments "Deliberate Deposits" North/West Areas
Date b.c.	

This is not to suggest, however, that there is no "early" beaker activity or scattered deposits in the north and west,. There are numerous chambered tombs in this area, particularly in the north and west of Scotland, which may have served a function similar to causewayed enclosures (and henges) during the "early" and "middle" beaker periods. The majority of chambered tombs from which beaker has been recovered have produced only a very few, very worn sherds, often with a poor context, and therefore are not considered in depth. A few sites, however, have produced more substantial deposits, and will be briefly discussed. Most of these sites have deposits of "deliberate" (type 2) and "middle" to "late"

beaker type (steps 4-7). There are a few possible "early" (steps 1-3) and "scattered" (type 1) deposits, including the sherds from Embo⁸⁹, dated to 1920 ± 100 b.c. (BM 442), which significantly pre-dates the deliberate deposits discussed above. Unfortunately, this is the only beaker date from a Scottish chambered tomb. The other sites which may contain material of this type are Tulach an t'Sionnaich [~~Henshall~~, 1972: 550-2] and Lower Dounreay, Caithness [op. cit., 1963: 280-1] and Cragabus, Islay [op. cit., 1972: 433-4]. Most of these were derived from mixed or disturbed deposits, and contained a high proportion of all-over-cord decorated sherds.

Scattered sherds of beaker, of "middle-late" type, were recovered from Clettraval [op. cit., 1972: 506-11], along with largely complete "middle" beakers from Geirisclett, Uist [op. cit., pp. 515-17], where the material was considerably disturbed, Kilcoy South, Ross [op. cit., 1963: 348-9], Achnacreebeag [Ritchie, 1969-70] and Dalineun, Argyll [Ritchie, 1971-2], where the latter was associated with blocking of the chamber. At Kilcoy South, a number of complete or largely complete "early" beakers were also recovered [op. cit., pp. 255, 348-9], which may indicate that the "early-deliberate" and "middle" beaker phases were contemporary, at least in the north.

Deliberate deposits of "early" type were recovered from Cairnholy II, Kirkcudbright [op. cit., 1972: 442-4], Glecknabae, Bute [op. cit., pp. 411-14], Unival, Uist [op. cit., pp. 529-34], Sundayswells, Aberdeen [op. cit., 1963: 399], and Kilcoy South, mentioned above. Again, the majority of vessels represented are of all-over-cord, or all-over-comb type. The Sundayswells beaker was

⁸⁹Proc. Soc. Antiq. Scot. 96 (1962-3): 9-36.

associated with a burial. "Middle" type deliberate deposits were recovered from Clettraval and Rudh' an Dunain [op. cit., 1972: 485-88], and "late" deposits from Taversoe Tuick [op. cit., 1963: 234-8] and Dunan Beag [op. cit., 1972: 375-7]. These latter vessels show a mixture of beaker and Food Vessel influences, and the deposit from Dunan Beag included a jet necklace. Ritchie, in his discussion of the Achnacreebeag material, suggested that

...the deposition of beaker pottery in chambered tombs seems to have occurred during three stages of the tomb ritual: as part of the collective burial tradition, in the act of filling and blocking the chamber, finally as secondary deposits at a date subsequent to the blocking...[Ritchie, 1969: 45-6].

This would seem a very similar description to that already put forward for beaker activity on causewayed enclosure and henge sites.

Beaker deliberate deposits of "late" type were also recovered from the Dalladies long barrow [Piggott, 1971], and the recumbent stone circles at Berrybrae [Burl, 1975-77], Beoch [McLeod, 1937], and Loanhead of Daviot, Aberdeen [Kilbride-Jones, 1935-6: 279]. At Dalladies, a beaker of very debased form was recovered from a secondary burial (A), constructed after the completion of the mortuary structure [Piggott, 1971: 38-41]. Other burials of the same phase contained a cremation with an awl, and at the front, near the facade, a Food Vessel cremation. The beaker burial was radiocarbon dated to 1680 ± 90 b.c. (SRR 553). At Berrybrae, beakers of late type were recovered from a pit [Burl, 1977: 5], and dated to 1500 ± 80 b.c., 1360 ± 90 b.c. (HAR 1849, HAR 1893). The Beoch beaker came from the area of a double row of stones, which may have been a cist. Numerous urns and cremation deposits were recovered from the interior of the circle, and these, with the beaker, probably

represent one depositional phase [McLeod, 1937: 235-47]. These activities would seem to parallel exactly the activity on the henge sites, during the "late-deliberate deposit" phase.

Deposits of this type were not limited to Scotland, but have also been recorded from chambered tombs in England and Wales, where beakers of middle type, largely complete, have been recovered from the fills of Pant-y-Saer⁹⁰, Ty Newydd⁹¹ and Capel Garmon⁹² [Powell, 1969: 155-57, 159-61]. The vessel from Pant-y-Saer was probably originally from an intrusive cist, cut through the top of the capping, and removed by excavators in the 19th century [*ibid.*].

Intentional placement of beaker deposits can also be noted on the long barrows of the south and east. Again, the majority of sites from which beaker was recovered produced only a handful of sherds, usually much worn and scattered in the filling of the chamber, or the uppermost levels of the ditches. These were probably not incorporated in the monument as part of a deliberate activity in which beakers played an important role. A few sites, however, have better preserved sequences, and deserve further comment. At the site of Thickthorn Down, Dorset, excavated by Drew and Piggott, beakers were recovered as secondary burials from the top of the mound, and from the upper levels of the ditch deposits. The ditches have a number of parallels with henges and causewayed enclosures; the "primary silt" is coarse chalk rubble, and concentrations of knapping debris occur on the ditch floor. The beakers come from the final silting before the turf, a mixed layer including Peterborough

⁹⁰Scott, *Archaeol. Cambriensis* 1933: 185-228.

⁹¹Phillips, *Archaeol. Cambriensis* 1936: 93-9.

⁹²Hemp, *Archaeol. Cambriensis* 1927: 1-43.

Ware and Romano-British sherds. The three vessels represented are probably "early" in type, as are those from the secondary interments [Drew, 1936 figs. 1-2, pp. 84]. The first accompanied a female and child, the second a female, also interred with a bronze awl.

The ditches of Giant's Hills long barrow, Lincolnshire also have loose rubble as the "primary silt," overlain by alternating layers of rubble fill and dirty loam, containing the bulk of the artefacts. This sequence would suggest a pattern of refilling involving "dumping" of material, familiar from causewayed enclosure sites such as Abingdon. Beaker of "middle" type was recovered from the uppermost of these dumped layers in section C-D [Phillips, 1935: 68, fig. 12]; approximately 100 sherds, representing c. 4 vessels, which may well have been broken before being placed in the ditch. A further two sherds of this type were located next to a Bos skeleton, in section A-B, lying in the "primary" fill. Iron Age activity would appear to have removed the upper levels in this section, however, and the sherds are likely to be derived [*ibid.*]. More puzzling are the "early" beaker sherds from the turf core of the mound. If the marked location is correct [see *op. cit.* pl. XI, and pl. XVII, fig. 2], and the capping has not been disturbed as this point, as Phillips states, then these sherds must have been incorporated during the mound construction. Unfortunately, no section drawing has been provided to substantiate this. The possibility of mis-identification of sherds also cannot be entirely ruled out.

At West Kennet long barrow there were no beaker sherds found in the ditches, but substantial deposits came from the chambers, particularly the north-east and north-west. The material would all appear to be of "early" type, and most sherds are scattered through the chamber filling, although one vessel, B8 [Piggott, 1962, fig. 14] may have

been deposited entire, in the uppermost levels of the north-west chamber. This may possibly represent a "deliberate deposit" similar to those at Hambledon Hill, as it would appear to lie above the other beaker sherds in this chamber. The chamber filling, according to Piggott, consists of a layer of coarse, clean chalk above the primary deposits, followed by alternating deposits of chalk rubble and "dirty" fills, containing charcoal and artefacts. These are similar to the ditch filling of Giant's Hills, and again, strongly suggest dumping activity. Piggott felt that the filling and blocking activities occupied one relatively short phase, and this might be confirmed by sherds of Peterborough Ware and beaker recovered from both the chamber fills and the blocking. Thomas and Whittle however, have re-interpreted these deposits as taking place over a considerable period, spanning the Late Neolithic, and suggest that at least three phases can be seen. The first phase would include only Peterborough Ware [Thomas, 1986: 141], the second and third (?) Peterborough Ware and beaker mixed. This is an interesting parallel with the "occupation site" at West Kennet Avenue, where the sequence is similar. Thomas and Whittle note the "...overwhelming dominance of the pottery of the Peterborough Ware tradition in the secondary deposits..." [op. cit., pp. 148], in contrast to Windmill Hill, Avebury, and the Sanctuary. A further point to note are the dates for the primary deposits in the chambers, associated with Early Neolithic ("Windmill Hill") ware. These are taken on bone, from the north-west chamber 2875 ± 90 b.c. (OxA 449), north-east chamber 2750 ± 80 b.c. (OxA 450), south-west chamber 2830 ± 90 b.c. (OxA 451), and suggest that the deposits in the long barrow may be contemporary with the burials, and deposits of animal bone on the floor of the ditch at Windmill Hill.

Returning to the diagram presented above, it would seem reasonable to include chambered tombs and long barrows within the general scheme, and thus the following sequence for beaker depositional activity is proposed;

1. "early" beakers predominant, c. 1850 - 1500 b.c., deposited mainly as "scatters" on causewayed enclosures, some henges, long barrows and chambered tombs. sites concentrated south and east.
2. "middle" beakers predominant, c. 1850 - 1450 b.c., deposited as "scatters" on causewayed enclosures, henges, long barrows and chambered tombs. parallel with "deliberate" deposits of "early" type beakers on these sites.
3. "late" beakers predominant, c. 1500 - 1350 b.c., deposited as "deliberate" deposits on henges, and some causewayed enclosures, chambered tombs and long barrows. sites concentrated north and west.

This sequence suggests two overall trends: a shift in emphasis from south to north, and a shift in type of deposit from "scattered" to "deliberate-burial." In the final chapter it will be argued that this shift is the result in a change in ritual practice, from a pattern established in the Early Neolithic, typified by deposits in long barrow and chambered tombs, and still in use during the "early" beaker phase, to a new Bronze Age emphasis on single burial. This new pattern began in the Late Neolithic, with "Neolithic" round barrows, and came to represent the dominant form of ritual practice in the "middle" beaker period, with its most extreme representation in the "Wessex" burials in the barrow cemeteries surrounding Stonehenge.

perforated stone and antler maceheads, flint axes, leaf and petit tranchet arrowheads, plano-convex knives, bone pins, boar's tusks, also appears in Bronze Age contexts, in graves such as Wilsford 58 and 60 (discussed below), indicating a continuity of burial practice.

It is interesting to note, from an examination of Kinnes' catalogue, the distribution of these early round mounds, 44% of which are in Yorkshire, followed by 12% from the Derbyshire Peak (equalling 56% of the total). 9% are found in the Wessex area. By stage, 27% are stage A, stages C and D are 16% and 17% respectively, suggesting that the majority of these barrows are "early" according to Kinnes' sequence. Inhumations outnumber cremations 2:1, the greatest number being in stages C and D. Cremations are greatest at the beginning and end of the sequence (A and F), although these distinctions are more likely to reflect the differing burial circumstances of the different groups, rather than a sequence over time. Very few radiocarbon dates were available to Kinnes in 1979, and these could not be used to support his sequence to any great degree. The number of dates has grown considerably [Kinnes, 1988], however, the clarity is no greater, and all the available dates overlap within two standard deviations [§appendix 5.3, pp. 459, fig. 70, pp. 597]. Interestingly, the central date for burials of this type would appear to be c. 2700 b.c., contemporary with that for the "initial phase" of ditch renewal and early ritual deposits on causewayed enclosures, as postulated earlier [§fig. 60, pp. 589].

Round barrows of Neolithic date remain relatively scarce, however, and it is in the Early Bronze Age that single, accompanied inhumation under a round earthen mound becomes the most commonly recognised form of burial (its collateral being burial in a cist, often covered by a cairn, in the north and west).

Chapter 9: Stonehenge Barrow Cemeteries and the Development of Individual Burial

...we cannot look upon the barrows and their varied contents without being impressed with the belief that the semi-savage state had been well-nigh passed, and that the dawn of an advanced civilization was approaching... [Greenwell, 1877: 119]

In the previous chapter, the sequence of beaker deposits on causewayed enclosures and henge monuments was outlined. To complete the examination of ritual practices in the Late Neolithic-Bronze Age, it is necessary to include a short discussion of the development of individual burial, particularly under round mounds, clusters of which form barrow cemeteries. The best known of these barrow cemeteries in the Early Bronze Age are those in the vicinity of Stonehenge.

Individual burial under round mounds was not unknown in the Neolithic period. Kinnes [1979] has outlined five stages in a sequential but overlapping development of Neolithic round barrows. "...earlier stages (A, B, part C) mortuary practices can be largely allied to those already well-documented in other contexts, particularly beneath non-megalithic long mounds..." [Kinnes, 1979: 58]. The connection between the two types was reinforced by shared artefact types with the burial deposits. In the later stages

...the tendencies apparent in stage C became manifest with the establishment of a distinctive round barrow tradition, moving away from structural foci towards individualizing modes expressed by grave rites and associations... [op. cit., pp. 64].

These included the burials identified by Piggott as making up the "Dorchester Culture" [Piggott, 1954: 351-63, especially fig. 62, pp. 357], based on the Dorchester henges, but including sites such as Upton Lovell, Somerset. The material equipment of these graves;

...around 1700 B.C. it is likely that a gravitation of interest and wealth occurred towards Wessex...the requirements of those buried in Wessex resulted in a flow of ideas and materials to the south from not only other parts of Britain and Ireland but also from the continent... [Coles, 1968: 71].

and it is here that the richest and most elaborate round barrow cemeteries developed.

The majority of barrows excavated in this area were opened in the nineteenth century by Sir Richard Colt Hoare with William Cunnington, who "...was responsible for supervising most of the barrow-digging, whilst Hoare provided the capital and labour for opening the 465 mounds they disturbed..." [Marsden, 1974: 13]. Their excavation techniques, while in many ways advanced for their period, nevertheless distinctly biased the evidence recovered;

...their methods were necessarily primitive...they involved either a central shaft down into a selected barrow, or a trench (called a 'cutting' by Hoare) driven in from one side to the barrow centre... [op. cit., pp. 16].

This meant that burials which lay off the central shaft, or line of the trench were not recovered, in many cases presenting a skewed picture of the number and types of burial in a particular barrow (compare with modern excavations such as the Shrewton barrows, below). Additional burials in the ditches were not considered; modern excavations such as Amesbury G51 [Ashbee, 1975: 1-60], have shown that ditches also served as burial locations. Further, details of the "bodies" recovered are frequently lacking, particularly the orientations, and Marsden has noted that Hoare and Cunnington "...consistently failed to preserve the bones from the graves they cleared out...occasionally the pair

neglected to recover pottery as well..." [*op. cit.*, pp. 18-19].

A second factor in considering the "representativeness" of these barrow excavations is the possibility of robbing of burials in antiquity. It is difficult to quantify the damage which may have occurred this way; certainly there are a number of barrows which Hoare and other excavators describe as being "disturbed." An examination of Grinsell's catalogue [Grinsell, 1957], for the parishes of Amesbury, Wilsford and Winterbourne Stoke, would indicate that the number of "disturbed" barrows varied from 3% - 13% (Amesbury 3%, Wilsford 13%, Winterbourne Stoke 6%⁹³) of barrows opened. It is now, however, impossible to know when such damage occurred, whether shortly after the barrow was erected, shortly before it was examined, or sometime in between.

Bearing in mind the shortcomings in both recovery and recording technique for the majority of excavated barrows in this area, five barrow groups can be considered, with some degree of success. These are the Cursus, Winterbourne Crossroads (or Stoke), Normanton, Lake, and Wilsford [§see fig. 71, pp. 598]. Each group contains several of the two basic types of Early Bronze Age burial under round mounds: the "Beaker" burial (a burial containing a beaker pot or pots) and the "Wessex" burial [§see appendix 6.1, pp. 465, for a catalogue of barrows].

The Wessex burial was defined by Piggott [1938]. It occurs primarily, if not exclusively, in the south of England, and can be linked to developments in Brittany by a series of similar or identical grave goods (such as gold dagger pommels with pontillé decoration). Some of the Wessex grave goods were derived from continental

⁹³this is interesting in the light of discussions, below. Wilsford, in particular, has suffered badly, and much important evidence may be lacking.

prototypes, others represent the actual importation of foreign goods, particularly small ornaments. These items were:

1. bronze daggers having midribs and/or lateral grooves.
2. incense cups (grape cup, aldbourne cup, etc...).
3. faience beads.
4. gold ornaments.
5. amber beads and pendants.
6. stone battle axes of "snowhill" type.
7. certain pins of "Germanic" type (round-headed, crutch-headed).
8. flanged axes.

Piggott's outline was further elaborated, and divided into a two stage process, Wessex I and Wessex II [Annable & Simpson, 1964]. These stages were defined by the prominence of certain types in particular the daggers, called variously the "Bush Barrow" or Armorico-British (Wessex I), and Camerton-Snowhill types [Wessex II, see Gerloff, 1975, pp. 69ff. for discussion]. Annable and Simpson, in their introduction to the Bronze Age material for the Devizes Museum catalogue [op. cit., pp. 20-28], defined the phases thus:

1. Wessex I: crouched inhumation, "royal graves" with Bush Barrow daggers, gold ornaments, shale and amber beads, halberd pendants, incense cups 'grape cup' type, spacer plate necklaces, "warrior graves" with daggers, bronze awl, stone shaft-hole battle axes.
2. Wessex II: cremation in urn, "warrior graves" with Camerton daggers, stone battle axes, bone tweezers, crutch-headed pin, ring-headed pin, "female graves" with spacer plate necklaces, segmented faience beads, Collared Urns, 'aldbourne cups'.

A number of radiocarbon dates have been obtained on material from Wessex II graves⁹⁴ ranging from Butterbump, 1750 ± 180 b.c. (HAR 490) to Welsh St. Donat's, 860 ± 35 b.c. (BM 1679). Burgess has correlated Wessex I with beakers of step 7 (metalworking stage VI), and Wessex II

⁹⁴§see appendix 4.5, pp. 455.

with post-beaker developments (stage VII). This scheme, however, represents

...a straight-forward chronological development of the metalwork, allowing just a little overlap between 'stages'... [Needham, 1986: 143].

and would not appear to be supported either by radiocarbon dates or artefact associations [see discussion, ch. 5, pp. 175-6]. This writer prefers to correlate Wessex I with "middle" beakers, steps 4-6.

The distinction between "Wessex I" and "Wessex II" is not so clear-cut as the Annable and Simpson list might suggest--in practice Wessex I and Wessex II types frequently occur in the same burial (for instance at Winterbourne Came). Even the distinction between the dagger types is not straight forward⁹⁵, as in the case of the burial from the Normanton group, Wilsford 23. This burial contains two daggers, one of "Bush barrow" type, the other a ribbed knife-dagger, with a whetstone, crutch-headed pin, and bone "flute". Of the dagger, Gerloff says "...the Wilsford dagger, therefore incorporates typological elements of the Armorico-British B, C and of the Camerton-Snowshill series..." [Gerloff, 1975: 95]. She goes on to say that

...form B must to some extent have co-existed with the daggers of the Camerton-Snowshill series...the daggers of the Armorico-British C form must be largely contemporary with those of the Camerton-Snowshill series... [*ibid.*]

Earlier discussion has suggested that daggers of the Wessex culture should be equated with beakers of steps 5-7 [see above, ch. 5], and that types such as "riveted

⁹⁵see also the results of spectrographic analysis, table 34, pp. 511 & fig. 76, pp. 603, which suggest that there is no significance difference in content between Wessex I and II.

knife-daggers" and "ribbed knife-daggers" occur with "middle" and "late" beaker and Wessex burials. Beakers of "early" type with accompanying metalwork (tanged daggers) and goldwork would appear to be earlier than the "Wessex" phase, although how much earlier is not clear [see figs. 38-9, pp. 552-3]; it is interesting in this context that the step 2 beaker burial from Barnack, Northants., with a tanged dagger and bracer with gold caps, dated to 1710 ± 60 b.c. (BM 1412), 1620 ± 80 b.c. (HAR 1645), overlaps within one standard deviation the date from The Hamel, Oxford, for a step 6 beaker and gold bracelet, 1520 ± 80 b.c. (HAR 3410). Both dates would fit comfortably within the "middle" beaker framework.

Other burials, clearly of "Wessex" type, would also suggest a "middle" beaker - "Wessex" overlap; the primary cremation in a Collared Urn, with accessory (incense) cup, bone bead and bronze awl, from Roxton, Bedfordshire, dated to 1670 ± 80 b.c. (HAR 997), would fit between the two above dates. Analysis of the radiocarbon dates for Wessex daggers and accompanying metalwork (including goldwork) suggests that the period for Wessex metalwork would fall between "middle" and "late" beakers, and be largely contemporary with them [fig. 41, pp. 555].

Although the evidence is sketchy, it seems unlikely that much metalwork was in circulation, or at least being incorporated into grave deposits before this "middle" beaker period. If Coles and Taylor's "minimal view" [Coles & Taylor, 1971], with a small goldsmithing school or even a single smith responsible for the bulk of the British goldwork of this period, is taken to its logical conclusion, the burials containing gold ornaments and "early" beakers must also belong to the "middle" beaker period. This is perhaps more shortening of the period than is warranted.

Turning to a discussion of the barrow cemetery groups, a number of patterns can be seen in the disposition of barrow and burial types. Appendix 6.2 [§pp. 478] gives an outline of different cemetery characteristics. "Bowl" and "bell" barrow types are the most common, representing between 70% - 90% of all barrows in any group. Most "furnished" burials and almost all "rich" burials (those with gold objects, multiple daggers, or large numbers of amber and faience beads) are from these bowl and bell types. Primary inhumations (i.e. where the primary interment is an inhumation) represent between 12% - 35% of interments, primary cremations between 35% - 55%. There are distinctions to be drawn here between cemeteries; in the Wilsford group primary inhumations and primary cremations occur with almost equal frequency, in Lake, primary cremations occur twice as often as inhumations [§fig. 72, pp. 599]. Numbers of "beaker" and "Wessex" burials vary widely, and again there are distinctions between cemeteries; in the Cursus and Lake groups there are roughly twice as many "Wessex" burials as beaker burials, in the Winterbourne Crossroads group, roughly three times Wessex to beaker, while in the Normanton and Wilsford groups the numbers are roughly equal [§fig. 73, pp. 600]. Normanton produced the highest number of "furnished" burials, Wilsford the lowest.

Certain general patterns can be seen in all groups. "Beaker" and "Wessex" burials are usually spatially distinct from one another, often occupying opposite ends of the barrow group [§see fig. 74, pp. 601]. In the Cursus and Normanton groups beaker burials are concentrated at the west end of these linear cemeteries, at Winterbourne Crossroads beaker burials occur at the north and west ends of the group. Of the two "cluster" groupings, Lake and Wilsford, beaker burials occupy a central position, while Wessex burials are ranged around

them. At Lake, beakers are grouped in a separate cluster, to the north-east of the main group. Further, among the Wessex burials there is a tendency for richer burials to be located close together. This is particularly noticeable in the Normanton and Winterbourne Crossroads groups [fig. 75, pp. 602]. "Rich" Wessex burials occur in primary position, as either inhumations (45%) or cremations (55%); however among the "Gold" graves the percentages are 65% inhumation, 35% cremation), and are usually without any noted secondary or accompanying burial. This differs distinctly from the beaker burials, where up to a dozen interments can occur, and multiple burials are common, although the primary interment is usually a single inhumation.

There appears to be a distinction made in the placement of "early" beaker graves (where they can be identified) vs. "middle" or "late" beaker graves. Those barrows which produced clear evidence of "early" beaker interments, Wilsford 1 (Normanton), Wilsford 54, and possibly 50c (Lake), lie outside the linear group or cluster, while those of "middle" to "late" type, Amesbury 54, (Cursus), Winterbourne Stoke 10 (Winterbourne Crossroads), Wilsford 62 (Wilsford), lie within the main cemetery group. Wilsford 1, in addition to beakers of step 2-3, produced a possible slate (?) copy of a metal (copper or bronze) flat axe.

It is difficult to speculate on the meaning of this distinction, although one could suggest that "early" beaker activity in the "pre-Wessex" period was unrelated to the later cemetery development, of which "middle" and "late" beakers appear to have formed an integral part. This seems unlikely, however, as the "early" beaker groups are in close proximity to the "later" cemetery, and in the case of Wilsford 54, an early beaker was accompanied by a dagger of "Butterwick" type, which

Gerloff placed in the beginning of the Armorico-British or "Bush barrow" phase [Gerloff, op. cit., pp. 47]. This burial also included a perforated stone axe, decidedly not an "early" beaker type. In three instances beakers and "Wessex" material appear in the same barrow; Amesbury 15 (Normanton), Amesbury 54, 56 (Cursus), the former in the same burial, a primary (male) inhumation, with a Wessex II type dagger, knife-dagger, beaker of unknown type, and stag's horns. This grave is particularly interesting, as it would appear to represent the melding of "Neolithic" and "Bronze Age" patterns. In the case of Amesbury 54, a step 5 beaker burial, with flint dagger and whetstone (primary inhumation) is followed by a Wessex burial (inhumation) with amber and faience beads, and then a further inhumation with a beaker of unknown type. At Amesbury 56 the pattern is reversed, and the Wessex burial (primary inhumation, with Wessex II type dagger) precedes the beaker interment (also an inhumation, beaker type unknown). Thorpe and Richards [1984] have suggested that in Wessex, the first rich beaker burials occur in peripheral areas, as a result of initial exclusion from 'centres of ritual activity' by a 'ritual elite' using Grooved Ware, with whom "Beakers" are in competition [Thorpe & Richards, 1984: 73-80]. Later, following the 'collapse of the ritual authority structure' there is an acknowledgement and re-use of earlier Grooved Ware centres of power, particularly within the funerary sphere, with secondary activity on henge and long barrow sites, and the initiation of discrete barrow cemeteries, each of which may have been used by one lineage.

Thorpe and Richards' explanation may be one way to account for the differences in cemetery composition, particularly in types of grave goods, which has also been noted by Bradley,

...the objects in the more elaborate graves can be divided into two groups: those which developed from the repertoire of the British Later Neolithic and others which have an international character... [Bradley, 1984: 87].

The cemeteries of Wilsford and Lake produced higher quantities of "Neolithic" types; perforated stone axes, flint knives, whetstones, worked flint and bone, boar's tusks, while the Cursus, Winterbourne Crossroads and Normanton produced a greater number of "international" items, particularly amber and faience beads of "Bronze Age" type (disc, segmented), bone pommels and belthooks, and gold ornaments. Burials such as Wilsford 8 (Normanton), and Wilsford 60 (Wilsford) are typical of these two groupings; Wilsford 8 was a primary cremation with incense cup, amber and gold halberd pendant, shale button with gold cover, bone pendant covered with gold, six amber pendants, two gold-bound amber discs, and a bronze and gold pendant; Wilsford 60 a secondary cremation with a bronze knife-dagger, perforated whetstone, whetstone, flint knife, worked flint, bone plaque and bone macehead. The range of types of grave goods is greatest in the Normanton group, including the largest number and variety of bronze and gold items. By contrast, the "Wessex" component in the Cursus and Wilsford cemeteries is represented almost entirely by beads, with only a very small number of bronzes and Wilsford produced no goldwork. The Cursus group had the small range of types, with virtually no stone and bone objects, and only a small number of bronze items and beads.

It is interesting to compare this group, and the Stonehenge cemeteries as a whole, with the Net Down group at Shrewton, to the north-west of the Winterbourne Crossroads group. Excavated between 1958-1960 by Charles Green [see Green, 1984, fig. 2], this group of twelve barrows included both "beaker" and "Wessex" types,

although the division between these two groups was not as marked as in the Stonehenge cemeteries. Most barrows held several burials, the majority of which were unaccompanied. Among the accompanied burials, pottery was the most common grave furnishing. The beakers of the Net Down group are all of "middle" to "late" type; the earliest of these, a step 4 (N₂) with a copper tanged dagger of "roundway" type and bone pommel accompanied a primary inhumation (male) in barrow 5k, near the centre of the barrow group. The beaker burials in 5a and 5e were also primary inhumations (male where known) and orientated north or north-east, which would appear to be the most common orientation for all burials in the Wessex area⁹⁶, where orientation is noted (too few orientations are mentioned among the Stonehenge groups to make an examination of this trait meaningful). The "Wessex" burials, barrows 5j and 5L are secondary (female, one inhumation and one cremation) and accompanied by ?necklaces of amber, lignite, faience and shell beads. Rollo-Smith, in his evaluation of the sites, suggested that the cemetery began with the beaker burial in 5k, which served as a focus for development [Green, 1984: 314-5]. Considering the relatively "impoverished" state of the Net Down "Wessex" burials, and their apparent late inclusion in the barrow group, it would be possible to postulate that in the area peripheral to the Stonehenge monument itself, while barrow cemeteries were being constructed during the same timespan as those more centrally located (cf. "middle-late" beakers), there was a slower uptake of the ostentatious "Wessex" burial type, and perhaps a greater reliance on "local" or "established" types of grave goods. This analogy could be extended to the Stonehenge cemeteries themselves; certainly the Normanton group provided the richest and most ostentatious burials with a high percentage of

⁹⁶see discussion of beaker burial orientations, ch. 1, pp. 65.

"international" items, while the Winterbourne Crossroads and Lake groups are less so, and the Wilsford group decidedly "impoverished" and "common" by comparison. Expanding on Thorpe and Richards' argument, it could be suggested that the most powerful lineage occupied the "prime position" of Normanton, and other lineages took up lesser positions around them.

Rather than see development in these groups as strictly temporal: beaker, followed by Wessex I, followed by Wessex II, consideration must be given either to the idea that the categories "beaker" and "Wessex" represented two different burial styles, or, more likely, that they represented gradients of the same style of individual furnished burial, of which the "gold" graves represented the pinnacle. This pattern, beginning within cemetery groups, was repeated between groups of barrows in an area, between areas within regions, and probably between regions, as part of the trend toward rich individual graves which seemed to coalesce at this time. Comparing radiocarbon dates for beaker deposits on henges and causewayed enclosures, particularly "deliberate deposits," with those available for the beaker and Wessex graves would indicate that the beaker burials are contemporary with "burial" deposits on these sites, (both primarily of "middle-late" beaker type), and followed by Wessex burials in the later stages. The diagram presented in the last chapter could be modified then, to include the beaker and "Wessex" period graves with deliberate deposits on henges, and beakers of "later" type.

Analysis of radiocarbon dates for beaker "elaborate" burials [round barrows with single accompanied inhumations, see discussion of this type, Bradley, 1984: 79; also appendix 5.5, pp. 463 & fig. 77-8, pp. 604-5] has suggested a date range contemporary with the

"deliberate deposit" phase of henges and causewayed enclosures, in the "middle" beaker period (not entirely surprising as the bulk of these burials are of "middle" type).

Deposit Type:	Hinges:			
	25%	50%	75%	n
Scattered	1556	1670	1720	21
Deliberate	1596	1714	1836	12
Beaker Burial	1501	1715	1810	28
Beaker with Metal	1405	1500	1570	7
Wessex	1190	1264	1527	13

The date for the beaker burial at Amesbury 51, Cursus group, 1788 ± 90 b.c. (BM 287), would indicate that this burial, probably fourth in sequence, should be contemporary with the "lithicisation" of Stonehenge, discussed earlier, and thus that the development of the "rich single burial" was well underway at this time. Perhaps a "shift of focus" is called for, with the elaborate burial groups of Normanton or Winterbourne Crossroads extending their activity to the Stonehenge monument rather than vice-versa (certainly the Normanton group would appear to be the centre for "rich burial" activity). "Deliberate deposits" on other henges and causewayed enclosures may also be the result of an attempt to incorporate these pre-existing monuments (old centres of power, according to Thorpe and Richards) into the new "single grave" scheme.

Conclusions

...there was a gradual move away from the genealogical basis of the earlier system of prestige and towards a system in which material symbols, such as metal artefacts, were used more directly to signify status and accrue prestige... [Braithwaite, 1984: 106].

Having discussed the changing depositional patterns of beaker pottery on the ritual monuments of the third millennium, it remains to consider how these patterns can be interpolated into the "broad sweep" of developments of the Late Neolithic - Early Bronze Age period. A number of writers [Braithwaite, op. cit., Thorpe and Richards, 1984, Thomas, 1984] have suggested that the shift from Neolithic to Bronze Age society was the result in the breakdown of a genealogically or ancestor-based social structure and its mutation into one based on individual status, expressed through prestige items; what Thorpe and Richards have called 'ritual authority structure' and 'prestige goods economy' [Thorpe & Richards, 1984: 67-69]. Thomas dealt extensively with the origin, function, and development of these structures for his Ph.D. thesis [Thomas, 1985]. The basic distinctions are between a society organized in a rigid hierarchy, based on seniority and/or descent from a founding ancestor, with close links to the ancestors, and ritual practices emphasizing the group over the individual (the "ritual authority structure"), and a society in which status is a measure of direct political or economic control, where access to ritual and esoteric knowledge becomes an object of competition. Political and/or economic power depends on the control over resources, and the production and circulation of wealth items ("prestige goods economy"). In this society, ritual practices may emphasize the individual (by such means as single accompanied burial). These two concepts may provide a useful background to the apparent shift from ritual behaviour which is

concentrated on "communal monuments" to that of "individual burial" between the Late Neolithic - Early Bronze Age periods, (although the author is sceptical as to whether such structures can be demonstrated satisfactorily).

What are the specific processes of this shift, in terms of the development of ritual practice? [fig. 77, pp. 604]. The construction and use of large communal monuments; causewayed enclosures, long barrows and chambered tombs, has already been outlined. Beginning in the period before c. 3000 b.c. [see table 38, pp. 517], it seems likely that these monuments underwent at least one major phase of renewal, c. 2700 b.c., including recutting and refilling of ditches, and the placement of specialized deposits, particularly in ditch terminals. Some sites, such as Briar Hill, experienced perhaps a dozen or more of these episodes.

Early "single" burials under round mounds also began about this time (c. 2700 b.c.). Their distribution seems to have been largely restricted to Yorkshire and the Midlands, an area which lies between that occupied by the bulk of causewayed enclosures and long barrows, and chambered tombs. It may also be, as Thorpe and Richards have argued, that Yorkshire in this period possessed a rudimentary "prestige goods economy," expressed in the development of rich single burial [op. cit., pp. 70-73].

Before c. 2400, henge monuments begin to appear, possibly replacing causewayed enclosures and long barrows as the major form of communal ritual monument, at least in the south and east. A number of sites have produced dates before 2300 b.c. for the "primary fills;" Llandegai A, Stonehenge, Stenness, Balfarg, and Balfarg Riding School. The evidence from Briar Hill and Stonehenge would now strongly suggest that henge monuments were a

development out of the causewayed enclosure tradition, perhaps with elements of long barrows/chambered tombs incorporated (upright elements translated into free-standing timber and stone arrangements).

...a number of the features of causewayed camps are repeated or reflected in the henge monuments: circularity, the non-utilitarian function of the ditch, placed deposits, and interest in, if not primary concern with, human skeletal remains, and the role as focus for community activity... [Harding, 1987: 59].

Henge sites also seem to have undergone at least one period of renewal, c. 2400 - 2000 b.c., similar to that on causewayed enclosures, with recutting and filling of ditches, and placement of organized ritual deposits.

The renewal phases on henges and causewayed enclosures would appear to be associated, first, with Early Neolithic "plain bowl" pottery, and later with Peterborough and Grooved Wares. Although both these Late Neolithic types occur on several sites, it is more common for one type to predominate, particularly on henges. Grooved Ware is the greater (or only) component at Balfarg, Durrington Walls, Woodhenge, Marden, and Mount Pleasant, among other sites, while Peterborough Ware is the greater (or only) at Gorsey Bigbury, Arminghall, Maiden's Grave, Avebury (occupation site), and several of the Dorchester sites. Other than in the north, where Peterborough Ware has not been satisfactorily identified⁹⁷, there is no obvious pattern of distribution. The distinction may be between type of site. Sites with Peterborough Ware as the greater component are generally of class I, those with Grooved Ware are class II [table 37, pp. 516].

⁹⁷see however the impressed wares from Meldon Bridge, Burgess & Miket, 1976: 151-79.

Sometime c. 2200 - 2000 b.c., beaker pottery appeared in Britain. As discussed earlier, the source of this pottery style is uncertain and although there are a few vessels with close continental parallels, there are no definitive "imports." Studies of clay sources have not produced clear-cut evidence for foreign manufacture (nor is it likely that they will). There has been considerable debate over the last twenty years as to the nature of the beaker presence in Britain, and the reason for the adoption of the beaker as the "vessel of choice" in accompanied single inhumations. Earlier authors favoured the 'invasion hypothesis,' involving the movement of a Beaker Culture population across the channel. The best evidence for this is the distribution of "early" type vessels, which is strongly coastal, particularly the east coast [see fig. 9, pp. 526]. This distribution could equally well be explained, however, as the result of trade contact and/or assimilation of ideas from the continent, Burgess' "constant cultural contact" [Burgess, 1980: 21]. The gradual spread of the idea of the beaker-type vessel led to its adoption over an ever widening area, as seen in the distribution of "middle" and "late" beaker types, which includes the "early" area, and eventually incorporates most of the rest of the country. Analysis of radiocarbon dates would suggest that this process took place over the first half of the second millennium; "early" beakers c. 2000 - 1700 b.c., "middle" beakers c. 1800 - 1600 b.c.

Recently, most authors have tended to accept Burgess and Shennan's "beaker package" hypothesis [Burgess & Shennan, 1977], whereby beakers were one item in a "set" required for new ritual practices which were becoming fashionable at this time. This model assumes that the elements of the package: tanged copper daggers, stone bracers, barbed and tanged flint arrowheads, v-perforated buttons and double pointed awls, were regarded as "a set"

prior to their appearance in Britain, and were incorporated together into British burial practice.

Unfortunately, there is very little evidence to support this hypothesis. The diversity of context and associations of beakers in Europe, and the very local styles of the beaker vessels themselves contradicts this, as even Burgess must admit "...this beaker package was everywhere blended into local contexts alongside local artefacts..." [Burgess, 1980: 62-3]. Analysis of artefact associations [§see table 18, pp. 484] would indicate that, with the exception of a few very notable graves in the Wessex area, associations of any kind are rare before beaker step 4, and become increasingly more common with steps 5-7. Comparing beaker artefact associations with those of Food Vessels, Collared Urns, and Wessex burials [§table 8, pp. 153] suggests that parallels between "middle-late" beakers and these groups are stronger than between "early" and "middle-late" beakers. In the previous chapter it was suggested on the basis of available radiocarbon dates that the "classic early beaker package" graves in Wessex may in fact be no earlier in date than the "insular middle-type" burials which occur in the same areas, and that both date to a period when metalwork was becoming readily available (c. 1800 - 1500 b.c.). The idea for the basic elements of the "beaker package:" pot, knife, axe, awl or pin, arrowhead, flintwork, were already present within the British Neolithic tradition, in the form of the Neolithic

round barrow burial (Piggott's "Dorchester Culture"), associated with later Neolithic pottery forms. The only change is the substitution of one type of pot for another. At this stage, it would seem most profitable to discard the idea of the "beaker package," and instead to consider the process of incorporation of this new pottery form into existing ritual practices.

Returning to the diagram of beaker deposits on henges and causewayed enclosures [above], there would appear to be a phase of deposition of "early" beaker types, in "early" beaker areas, on pre-existing ritual monuments, henges and particularly causewayed enclosures in the south and east (see for instance the early date for beakers from Briar Hill). This may be paralleled by deposits in chambered tombs in the north and west. These deposits, although "deliberate" in the same sense that earlier pottery deposits would appear to be deliberately incorporated in the ditch fills and features, and not the result of natural silting processes, do not appear to have the same element of individual burial of vessels which appears with the "middle" and "late" types. How much, if any, earlier in date these deposits may be cannot be discovered through the radiocarbon dates presently available, and this earlier phase must be postulated on the basis of stratigraphy at sites such as Hambledon Hill and Mount Pleasant, where they underlie deposits of "middle" - "late" type.

Following this was a phase in which "middle" beakers along with "early" types were being deposited on henges and causewayed enclosures (long barrows and chambered tombs), both as sherd scatters, and as deliberately buried vessels. This phase also saw the initial period of the "beaker burial," accompanied inhumations in round

mounds, with beakers of "early" and "middle" type, as in the cemeteries around Stonehenge. There is some dating evidence, outlined in the previous chapter [ch. 8, pp.], to suggest that beaker burials of this type in round mounds may have preceded burial of vessels on henges and causewayed enclosures. These processes occurred in both the "early" and "middle" beaker areas. Distribution by beaker steps, and available radiocarbon dates indicate that this phase may have been largely "southern" and "eastern" in its extent.

The final phase saw "middle" and particularly "late" beaker being deposited, usually by deliberate burial, and often as part of a grave or cist, on causewayed enclosures, long barrows, chambered tombs and particularly henges. This seems to have been a phenomenon of the "middle-late" beaker areas, and of the northern and western regions of the country. The Wessex burial, which may have begun in the preceding phase, had reached its full development, and Wessex grave goods seem to have replaced the beaker at the pinnacle of Bronze Age burial opulence, while beaker burials of this period incorporate artefacts of "Wessex type."

In the earlier half of this sequence, beaker depositional patterns would appear to be very similar, if not identical to those associated with Neolithic ritual practice--incorporation of vessels, probably already broken, into ditch fills, frequently as part of a recutting-cleaning-refilling sequence familiar from Earlier Neolithic contexts. Distribution patterns show similar preferences for ditch terminals, large entrance post-holes, and concentrations around other "significant" features. Intrasite patterns are very reminiscent of those for Grooved Ware deposits (as at, for instance, Durrington Walls). These include "specialized" deposits, clusterings of highly decorated sherds in a portion or

portions of the ditches (as at Hambledon Hill, Stepleton Enclosure and Whitehawk), and differential deposits of cord decorated vs. comb decorated vs. undecorated sherds (Windmill Hill, inner vs. outer ditches, Mount Pleasant Site IV vs. the main enclosure). The social rituals, such as feasting and disposal of human remains, seem to have continued, with beakers taking the place of earlier pottery types.

...in the initial stages it seems as if Beaker material was playing a rather similar role to other finds from earlier monuments...the deposition of Beaker pottery in these places reveals a conscious emphasis on tradition... [Bradley, 1984: 80-1].

In the latter half, the "middle" and "late" beaker phases, the pattern of ritual can be seen to be changing, from an emphasis on the "communal" to the "individual." During this period many of the monuments underwent further and more radical modification, particularly in the north, where a number of henges were converted into burial mounds or cairns. Single burial, already a part of Neolithic traditions, now came to the fore as the primary form of funerary ritual expression. It would be tempting to see the development of round barrow burial with beaker pottery preceding "deliberate burial" of beakers on henges and causewayed enclosures, and, although there is some evidence to suggest this, the radiocarbon dating pattern is not clear cut. Analysis of the percentiles for each development suggests close contemporaneity between the two:

Site Type:	10%	25%	50%	75%	90%
Burials	1240	1473	1710	1810	1891
Henges and Causewayed Enclosures	1453	1544	1675	1756	1838

The shift between these two ritual forms would appear to have been fairly gradual, with the two traditions existing "side by side" for some time. On the southern

sites, this shift would appear to be accompanied by continuing development of site architecture, most striking at Avebury and Stonehenge, with the erection of massive arrangements of standing stones. In the north, at sites such as Cairnpapple, actual burial places were erected within the henges themselves, or on/within the chambered tombs, modifying these sites to bring them within the sphere of the new ritual practices.

The impetus for this shift has been speculated upon at some length, although often in only the most general terms. Phrases such as 'strains between hierarchical levels' [Braithwaite, 1984] may go some way to interpreting the change in ritual emphasis, but do not identify the "prime mover" (or movers) which caused such strains. A number of factors were certainly involved, some of which will probably never be identified. At least one of the "prime movers" must be, however, the increasing availability of metal, and the expanding trade networks which developed to organize and control its distribution. It does not seem accidental that ^{the} floruit of individual burial in the "middle" beaker period coincides with the appearance of metalwork as grave furniture, or that the growing amount of metalwork in circulation should influence the somewhat overdone graves of the Wessex period. It should perhaps be noted in this context that the location of Wessex, between the metalwork-producing areas in Ireland, and on the continent, created potential opportunities to take advantage of trade networks.

Several authors have suggested [see Thorpe and Richards, 1984, for instance] that there existed a dichotomy of practice between the "old guard" of the existing ritual centres, henges, causewayed enclosures, long barrows, chambered tombs, often associated with Grooved Ware, and the "new guard" of single burial and

beakers, with the old gradually giving way to the new. This can be seen, they argue, in the tendency for "early" beaker burials to be placed away from these older centres of power [*ibid.*]. Apart from the chronological difficulties with this interpretation, (discussed in the previous chapter) it relies upon concepts such as "beaker cult package", which, it has been suggested, have become outdated. In the area of the Stonehenge barrow cemeteries, which Thorpe and Richards examined, it has been proposed (in chapter 9) that the centre for the development of the different barrow clusters should be taken as the Normanton Down group, rather than Stonehenge itself [see pp. 397]. It would be reasonable to suggest that rather than a form of competition, the later beaker material at Stonehenge represented an attempt to include the monument within the developing framework of the barrow cemetery groups. This may also have been the case in other areas with clusters of ritual monuments, as for instance, that including Avebury, the Sanctuary, and West Kennet long barrow (and perhaps Windmill Hill). Here the construction of the West Kennet Avenue, the burials there, and at the other monuments, may have served to tie all these monuments together into a "ritual area" in this period. A similar effect may have been achieved between the monuments of Mount Pleasant and Maiden Castle, and between Balfarg and Balbirnie.

Beakers were not the only pottery type associated with the Neolithic - Bronze Age shift. In the north and west, Food Vessels (available already at the period of major development of beakers in these regions (steps 4-6)) became the "vessel of choice," with beakers taking up subsidiary positions, as seen at Cairnpapple or North Mains. The use of Food Vessels, in preference to beakers serves to emphasize that it was not the particular vessel type (e.g. Food Vessel, beaker, Collared Urn) which was

important but the incorporation of a vessel, of suitable type or status.

The earlier concept of the change from Neolithic to Bronze Age being brought about by the arrival of continental "Beaker migrants", as set forth by Burgess

...these newcomers, the beaker folk, while essentially Neolithic in their way of life, nevertheless set in motion the changes which brought long-established Neolithic traditions to an end, and ushered in the Bronze Age... [Burgess, 1974: 165].

had been replaced by the 'constant culture contact' model by the time of his writing The Age of Stonehenge [1980]. In this model, third millennium Britain is divided by stratified society into fairly rigid territories, each of which will have contact with its neighbours through a variety of social activities; trading, fairs and festivals, regular inter-tribal meetings.... These and other forms of contact provide the media by which ideas can pass between groups. Change is not the result of population movement, or even, necessarily movement of objects.

...it is not the people within their territories who change, but their ideas, which adapt to each innovation. The various categories of pottery become representative of different burial traditions, not different peoples, each spreading from its own territorial origin... [Burgess, 1980: 22].

The key points are the spreading of ideas (information) from a point of origin outwards (involving a centre and a periphery), and the assimilation and adaptation of these ideas by other groups by processes not requiring interchange of either people or objects. The uptake of ideas may be random and sporadic, or quite uniform. This mechanism for bringing about change in the archaeological record would seem much more in keeping

with the gradual, clinal shift from "Neolithic" to "Bronze Age" lifestyle, insofar as ritual practice, discussed above, is concerned.

It is time for the role of beakers in the Late Neolithic - Early Bronze Age to be once again re-evaluated. "Beaker people" can no longer reasonably be given the part of "prime mover" in this process, nor can the "beaker cult package" (essentially a dilution of the former, removing the references to 'culture') serve as satisfactory explanation. To understand more clearly the developments at hand, it is necessary to look for the forces acting on the individuals and groups, which set in motion the changes outlined above, and which have only so far been hinted at. In this process the value of beaker pottery has been and will continue to be as a tool and touchstone, to enable the mapping and evaluation of both variations on a minute local basis, and transformations on the broad scale.